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A Suggestion for Simplifying the Theory of Money¹

By J. R. HICKS

AFTER the thunderstorms of recent years, it is with peculiar diffidence and even apprehension that one ventures to open one's mouth on the subject of money. In my own case these feelings are particularly intense, because I feel myself to be very much of a novice at the subject. My education has been mostly in the non-monetary parts of economics, and I have only come to be interested in money because I found that I could not keep it out of my non-monetary problems. Yet I am encouraged on reflection to hope that this may not prove a bad approach to the subject: that some things at least which are not very evident on direct inspection may become clearer from a cross-light of this sort.

It is of course very largely by such cross-fertilisation that economics progresses, and at least one department of non-monetary economics has hardly emerged from a very intimate affair with monetary theory. I do not, however, propose to resume this particular liaison. One understands that most economists have now read Böhm-Bawerk; yet whatever that union has bred, it has not been concord. I should prefer to seek illumination from another point of view—from a branch of economics which is more elementary, but, I think, in consequence better developed—the theory of value.

To anyone who comes over from the theory of value to the theory of money, there are a number of things which are rather startling. Chief of these is the preoccupation of monetary theorists with a certain equation, which states that the price of goods multiplied by the quantity of goods equals the amount of money which is spent on them. This equation crops up again and again, and it has all sorts of ingenious little arithmetical tricks performed on it. Sometimes it comes out

¹ A paper read at the Economic Club, November 1934. The reader is asked to bear in mind the fact that the paper was written to be read aloud, and to excuse certain pieces of mischief.

as $MV = PT$; and once, in its most stupendous transfiguration, it blossomed into $P = \frac{E}{O} + \frac{I' - S}{R}$. Now we, of the theory of value, are not unfamiliar with this equation, and there was a time when we used to attach as much importance to it as monetary theorists seem to do still. This was in the middle of the last century, when we used to talk about value being "a ratio between demand and supply." Even now, we accept the equation, and work it, more or less implicitly, into our systems. But we are rather inclined to take it for granted, since it is rather tautologous, and since we have found that another equation, not alternative to the quantity equation, but complementary with it, is much more significant. This is the equation which states that the relative value of two commodities depends upon their relative marginal utility.

Now, to an *ingénu*, who comes over to monetary theory, it is extremely trying to be deprived of this sheet-anchor. It was marginal utility that really made sense of the theory of value; and to come to a branch of economics which does without marginal utility altogether! No wonder there are such difficulties and such differences! What is wanted is a "marginal revolution"!

That is my suggestion. But I know that it will meet with apparently crushing objections. I shall be told that the suggestion has been tried out before. It was tried by Wicksell, and though it led to interesting results, it did not lead to a marginal utility theory of money. It was tried by Mises, and led to the conclusion that money is a ghost of gold—because, so it appeared, money as such has no marginal utility.¹ The suggestion has a history, and its history is not encouraging.

This would be enough to frighten one off, were it not for two things. Both in the theory of value and in the theory of money there have been developments in the twenty or thirty

¹ A more subtle form of the same difficulty appears in the work of Marshall and his followers. They were aware that money ought to be subjected to marginal utility analysis; but they were so dominated by the classical conception of money as a "veil" (which is valid enough at a certain level of approximation) that they persisted in regarding the demand for money as a demand for the things which money can buy—"real balances." As a result of this, their invocation of marginal utility remained little more than a pious hope. For they were unable to distinguish, on marginal utility lines, between the desire to save and the desire to hoard; and they necessarily overlooked that indeterminateness in the "real balance" (so important in some applications of monetary theory), which occurs when the prices of consumption goods are expected to change. On the other hand, I must admit that some versions of the Marshallian theory come very close to what I am driving at. Cf. Lavington, *English Capital Market*, ch. vi.

years since Wicksell and Mises wrote. And these developments have considerably reduced the barriers that blocked their way.

In the theory of value, the work of Pareto, Wicksteed, and their successors, has broadened and deepened our whole conception of marginal utility. We now realise that the marginal utility analysis is nothing else than a general theory of choice, which is applicable whenever the choice is between alternatives that are capable of quantitative expression. Now money is obviously capable of quantitative expression, and therefore the objection that money has no marginal utility must be wrong. People do choose to have money rather than other things, and therefore, in the relevant sense, money must have a marginal utility.

But merely to call that marginal utility X, and then proceed to draw curves, would not be very helpful. Fortunately the developments in monetary theory to which I alluded come to our rescue.

Mr. Keynes' "Treatise," so far as I have been able to discover, contains at least three theories of money. One of them is the Savings and Investment theory, which, as I hinted, seems to me only a quantity theory much glorified. One of them is a Wicksellian natural rate theory. But the third is altogether much more interesting. It emerges when Mr. Keynes begins to talk about the price-level of investment goods; when he shows that this price-level depends upon the relative preference of the investor—to hold bank-deposits or to hold securities. Here at last we have something which to a value theorist looks sensible and interesting! Here at last we have a choice at the margin! And Mr. Keynes goes on to put substance into our X, by his doctrine that the relative preference depends upon the "bearishness" or "bullishness" of the public, upon their relative desire for liquidity or profit.

My suggestion may, therefore, be re-formulated. It seems to me that this third theory of Mr. Keynes really contains the most important part of his theoretical contribution; that here, at last, we have something which, on the analogy (the appropriate analogy) of value theory, does begin to offer a chance of making the whole thing easily intelligible; that it is from this point, not from velocity of circulation, natural rate of interest, or Saving and Investment, that we ought to start in constructing the theory of money. But in saying this, I am being more Keynesian than Keynes; I must endeavour to defend my position in detail.

II

The essence of the method I am proposing is that we should take the position of an individual at a particular point of time, and enquire what determines the precise quantity of money which he will desire to hold. But even to this simple formulation of the problem it is necessary to append two footnotes.

1. "Point of Time." We are dealing with an individual decision to hold money *or* something else, and such a decision is always made at a point of time. It is only by concentrating on decisions made at particular points of time that we can apply the theory of value to the problem at all. A very large amount of current controversy about money seems to me to be due to the attempt, superficially natural, but, in fact, highly inconvenient, to establish a close relation between the demand for money and *income*. Now the simple consideration that the decision to hold money is always made at a point of time shows that the connection between income and the demand for money must always be indirect. And in fact the whole conception of income is so intricate and beset by so many perplexing difficulties, that the establishment of any connection with income ought only to be hoped for at a late stage of investigation.¹

2. "Money." What sort of money are we considering? For the present, any sort of money. The following analysis will apply equally whether we think of money as notes, or bank deposits, or even metallic coins. It is true that with a metallic currency there is an ordinary commodity demand for the money substance to be considered, but it is relatively unimportant for most of our purposes. Perhaps it will be best if we take as our standard case that of a pure paper currency in a community where there are no banks. What follows has much wider application in reality. Only I would just ask you to keep this standard case in mind, since by using it as a basis for discussion, we may be able to save time a little.

An individual's decision to hold so much money means that he prefers to hold that amount of money, rather than either less or more. Now what are the precise contents of these displaced alternatives? He could reduce his holding of money in three ways:

¹ Cf. Lindahl, *The Concept of Income* (Essays in honour of Gustav Cassel).

1. by spending, i.e. buying something, it does not matter what;
2. by lending money to someone else;
3. by paying off debts which he owes to someone else.

He can increase his holding of money in three corresponding ways:

1. by selling something else which he owns;
2. by borrowing from someone else;
3. by demanding repayment of money which is owed by someone else.

This classification is, I think, complete. All ways of changing one's holding of money can be reduced to one of these classes or a combination of two of them—purchase or sale, the creation of new debts or the extinction of old.

If a person decides to hold money, it is implied that he prefers to do this than to adopt any of these three alternatives. But how is such a preference possible?

A preference for holding money instead of spending it on consumption goods presents no serious difficulty, for it is obviously the ordinary case of a preference for future satisfactions over present. At any moment, an individual will not usually devote the whole of his available resources to satisfying present wants—a part will be set aside to meet the needs of the future.

The critical question arises when we look for an explanation of the preference for holding money rather than capital goods. For capital goods will ordinarily yield a positive rate of return, which money does not. What has to be explained is the decision to hold assets in the form of barren money, rather than of interest- or profit-yielding securities. And obviously just the same question arises over our second and third types of utilisation. So long as rates of interest are positive, the decision to hold money rather than lend it, or use it to pay off old debts, is apparently an unprofitable one.

This, as I see it, is really the central issue in the pure theory of money. Either we have to give an explanation of the fact that people do hold money when rates of interest are positive, or we have to evade the difficulty somehow. It is the great traditional evasions which have led to Velocities of Circulation, Natural Rates of Interest, *et id genus omne*.¹

¹ I do not wish to deny that these concepts have a use in their appropriate place—that is to say, in particular applications of monetary theory. But it seems to me that

Of course, the great evaders would not have denied that there must be some explanation of the fact. But they would have put it down to "frictions," and since there was no adequate place for frictions in the rest of their economic theory, a theory of money based on frictions did not seem to them a promising field for economic analysis.

This is where I disagree. I think we have to look the frictions in the face, and see if they are really so refractory after all. This will, of course, mean that we cannot allow them to go to sleep under so vague a title.

III

The most obvious sort of friction, and undoubtedly one of the most important, is the cost of transferring assets from one form to another. This is of exactly the same character as the cost of transfer which acts as a certain impediment to change in all parts of the economic system; it doubtless comprises subjective elements as well as elements directly priced. Thus a person is deterred from investing money for short periods, partly because of brokerage charges and stamp duties, partly because it is not worth the bother.

The net advantage to be derived from investing a given quantity of money consists of the interest or profit earned less the cost of investment. It is only if this net advantage is expected to be positive (i.e. if the expected rate of interest $\pm$ capital appreciation or depreciation, is greater than the cost of investment) that it will pay to undertake the investment.

Now, since the expected interest increases both with the quantity of money to be invested and with the length of time for which it is expected that the investment will remain untouched, while the costs of investment are independent of the length of time, and (as a whole) will almost certainly increase at a diminishing rate as the quantity of money to be invested increases, it becomes clear that with any given level of costs of investment, it will not pay to invest money for less than a certain period, and in less than certain quantities. It will be profitable to hold assets for short periods, and in relatively small quantities, in monetary form.

Thus, so far as we can see at present, the amount of money a person will desire to hold depends upon three factors: the

they are a nuisance in monetary theory itself, that they offer no help in elucidating the general principles of the working of money.

dates at which he expects to make payments in the future, the cost of investment, and the expected rate of return on investment. The further ahead the future payments, the lower the cost of investment, and the higher the expected rate of return on invested capital—the lower will be the demand for money.

However, this statement is not quite accurate. For although all these factors may react on the demand for money, they may be insufficient to determine it closely. Since the quantity of available money must generally rise to some minimum before it is profitable to invest it at all, and further investment will then proceed by rather discontinuous jumps for a while, we shall expect to find the demand for money on the part of private individuals, excepting the very well-to-do, fairly insensitive to changes of this sort. But this does not mean that they are unimportant. For among those who are likely to be sensitive, we have to reckon, not only the well-to-do, but also all business men who are administering capital which is not solely their own private property. And this will give us, in total, a good deal of sensitivity.

IV

Our first list of factors influencing the demand for money—the expected rate of interest, the cost of investment, and the expected period of investment—does, therefore, isolate some factors which are really operative; but even so, it is not a complete list. For we have also to take into account the fact, which is in reality of such enormous importance, that people's expectations are never precise expectations of the kind we have been assuming. They do not say to themselves "this £100 I shall not want until June 1st" or "this investment will yield 3·7 per cent"; or, if they do, it is only a kind of shorthand. Their expectations are always, in fact, surrounded by a certain penumbra of doubt; and the density of that penumbra is of immense importance for the problem we are considering.

The risk-factor comes into our problem in two ways: first, as affecting the expected period of investment; and second, as affecting the expected net yield of investment. There are certain differences between its ways of operation on these two lines; but, as we shall see, the resultant effects are broadly similar.

Where risk is present, the *particular* expectation of a riskless situation is replaced by a band of possibilities, each of which is considered more or less probable. It is convenient to represent these probabilities to oneself, in statistical fashion, by a mean value, and some appropriate measure of dispersion. (No single measure will be wholly satisfactory, but here this difficulty may be overlooked.) Roughly speaking, we may assume that a change in mean value with constant dispersion has much the same sort of effect as a change in the particular expectations we have been discussing before. The peculiar problem of risk therefore reduces to an examination of the consequences of a change in dispersion. Increased dispersion means increased uncertainty.

If, therefore, our individual, instead of knowing (or thinking he knows) that he will not want his £100 till June 1st, becomes afflicted by increased uncertainty; that is to say, while still thinking that June 1st is the most likely date, he now thinks that it will be very possible that he will want it before, although it is also very possible that he will not want it till after; what will be the effect on his conduct? Let us suppose that when the date was certain, the investment was marginal—in the sense that the expected yield only just outweighed the cost of investment. With uncertainty introduced in the way we have described, the investment now offers a chance of larger gain, but it is offset by an equal chance of equivalent loss. In this situation, I think we are justified in assuming that he will become less willing to undertake the investment.

If this is so, uncertainty of the period for which money is free will ordinarily act as a deterrent to investment. It should be observed that uncertainty may be increased, either by a change in objective facts on which estimates are based, or in the psychology of the individual, if his temperament changes in such a way as to make him less inclined to bear risks.

To turn now to the other uncertainty—uncertainty of the yield of investment. Here again we have a penumbra; and here again we seem to be justified in assuming that spreading of the penumbra, increased dispersion of the possibilities of yield, will ordinarily be a deterrent to investment. Indeed, without assuming this to be the normal case, it would be impossible to explain some of the most obvious of the observed facts of the capital market. This sort of risk, therefore, will

ordinarily be another factor tending to increase the demand for money.

V

So far the effect of risk seems fairly simple; an increase in the risk of investment will act like a fall in the expected rate of net yield; an increase in the uncertainty of future out-payments will act like a shortening of the time which is expected to elapse before those out-payments; and all will ordinarily tend to increase the demand for money. But although this is what it comes down to in the end, the detailed working of the risk-factor is not so simple; and since these further complications have an important bearing upon monetary problems, we cannot avoid discussing them here.

It is one of the peculiarities of risk that the total risk incurred when more than one risky investment is undertaken, does not bear any simple relation to the risk involved in each of the particular investments taken separately. In most cases, the "law of large numbers" comes into play (quite how, cannot be discussed here), so that the risk incurred by undertaking a number of separate risky investments will be less than that which would have been incurred if the same total capital had been invested altogether in one direction. When the number of separate investments is very large, the total risk may sometimes be reduced very low indeed.

Now in a world where cost of investment was negligible, everyone would be able to take considerable advantage of this sort of risk-reduction. By dividing up his capital into small portions, and spreading his risks, he would be able to insure himself against any large total risk on the whole amount. But in actuality, the cost of investment, making it definitely unprofitable to invest less than a certain minimum amount in any particular direction, closes the possibility of risk-reduction along these lines to all those who do not possess the command over considerable quantities of capital. This has two consequences.

On the one hand, since most people do not possess sufficient resources to enable them to take much advantage of the law of large numbers, and since even the large capitalist cannot annihilate his risks altogether in this manner, there will be a tendency to spread capital over a number of investments, not for this purpose, but for another. By investing only a

proportion of total assets in risky enterprises, and investing the remainder in ways which are considered more safe, it will be possible for the individual to adjust his whole risk-situation to that which he most prefers, more closely than he could do by investing in any single enterprise. It will be possible, for example, for him to feel fairly certain that in particular unfavourable eventualities he will not lose more than a certain amount. And, since, both with an eye on future commitments with respect to debt, and future needs for consumption, large losses will lay upon him a proportionately heavier burden than small losses, this sort of adjustment to the sort of chance of loss he is prepared to stand will be very well worth while.

We shall, therefore, expect to find our representative individual distributing his assets among relatively safe and relatively risky investments; and the distribution will be governed, once again, by the objective facts upon which he bases his estimates of risk, and his subjective preference for much or little risk-bearing.

On the other hand, those persons who have command of large quantities of capital, and are able to spread their risks, are not only able to reduce the risk on their own capital fairly low—they are also able to offer very good security for the investment of an extra unit along with the rest. If, therefore, they choose to become borrowers, they are likely to be very safe borrowers. They can, therefore, provide the safe investments which their fellow-citizens need.

In the absence of such safe investments, the ordinary individual would be obliged to keep a very considerable proportion of his assets in monetary form, since money would be the only safe way of holding assets. The appearance of such safe investments will act as a substitute for money in one of its uses, and therefore diminish the demand for money.

This particular function is performed, in a modern community, not only by banks, but also by insurance companies, investment trusts, and, to a certain (perhaps small) extent, even by large concerns of other kinds, through their prior charges. And, of course, to a very large extent indeed, it is performed by government stock of various kinds.

Banks are simply the extreme case of this phenomenon; they are enabled to go further than other concerns in the creation of money substitutes, because the security of their promises to pay is accepted generally enough for it to be possible to make payments in those promises. Bank deposits

are, therefore, enabled to substitute money still further, because the cost of investment is reduced by a general belief in the absence of risk.

This is indeed a difference so great as to be properly regarded as a difference in kind ; but it is useful to observe that the creation of bank credit is not really different in its economic effects from the fundamentally similar activities of other businesses and other persons. The significant thing is that the person who deposits money with a bank does not notice any change in his liquidity position ; he considers the bank deposit to be as liquid as cash. The bank, on the other hand, finds itself more liquid, if it retains the whole amount of the cash deposited ; if it does not wish to be more liquid, but seeks (for example) to restore a conventional reserve ratio, it will have to increase its investments. But substantially the same sort of thing happens when anyone, whose credit is much above the average, borrows. Here the borrowing is nearly always a voluntary act on the part of the borrower, which would not be undertaken unless he was willing to become less liquid than before ; the fact that he has to pay interest on the loan means that he will be made worse off if he does not spend the proceeds. On the other hand, if the borrower's credit is good, the liquidity of the lender will not be very greatly impaired by his making the loan, so that his demand for money is likely to be at least rather less than it was before the loan was made. Thus the net effect of the loan is likely to be "inflationary," in the sense that the purchase of capital goods or securities by the borrower is likely to be a more important affair than any sale of capital goods or securities by the lender, made necessary in order for the lender to restore his liquidity position.

Does it follow that all borrowing and lending is inflationary in this sense ? I do not think so ; for let us take the case when the borrower's credit is very bad, and the lender is only tempted to lend by the offer of a very high rate of interest. Then the impairment of the lender's liquidity position will be very considerable ; and he may feel it necessary to sell rather less risky securities to an even greater capital sum in order to restore his liquidity position. Here the net effect would be "deflationary."

The practical conclusion of this seems to be that while *voluntary* borrowing and lending is at least a symptom of monetary expansion, and is thus likely to be accompanied by rising prices, "distress borrowing" is an exception to this

rule; and it follows, further, that the sort of stimulation to lending, by persuading people to make loans which they would not have made without persuasion (which was rather a feature of certain phases of the world depression), is a dubious policy—for the lenders, perhaps without realising what they are doing, are very likely to try and restore their liquidity position, and so to offset, and perhaps more than offset, the expansive effects of the loan.

VI

It is now time for us to begin putting together the conclusions we have so far reached. Our method of analysis, it will have appeared, is simply an extension of the ordinary method of value theory. In value theory, we take a private individual's income and expenditure account; we ask which of the items in that account are under the individual's own control, and then how he will adjust these items in order to reach a most preferred position. On the production side, we make a similar analysis of the profit and loss account of the firm. My suggestion is that monetary theory needs to be based again upon a similar analysis, but this time, not of an income account, but of a capital account, a balance sheet. We have to concentrate on the forces which make assets and liabilities what they are.

So as far as banking theory is concerned, this is really the method which is currently adopted; though the essence of the problem is there somewhat obscured by the fact that banks, in their efforts to reach their "most preferred position" are hampered or assisted by the existence of conventional or legally obligatory reserve ratios. For theoretical purposes, this fact ought only to be introduced at a rather late stage; if that is done, then my suggestion can be expressed by saying that we ought to regard every individual in the community as being, on a small scale, a bank. Monetary theory becomes a sort of generalisation of banking theory.

We shall have to draw up a sort of generalised balance sheet, suitable for all individuals and institutions. It will have to be so generalised that many of the individual items will, in a great many cases, not appear. But that does not matter for our purposes. Such a generalised balance sheet will presumably run much as follows.

<i>Assets.</i>	<i>Liabilities.</i>
Consumption goods	
—perishable	
Consumption goods	
—durable	
Money	
Bank deposits	
Short term debts	Short term debts
Long term debts	Long term debts
Stocks and shares	
Productive equipment (in- cluding goods in process)	

We have been concerned up to the present with an analysis (very sketchy, I am afraid) of the equilibrium of this balance sheet. This analysis has at least shown that the relative size of the different items on this balance sheet is governed mainly by anticipation of the yield of investments and of risks.¹ It is these anticipations which play a part here corresponding to the part played by prices in value theory.²

Now the fact that our "equilibrium" is here determined by subjective factors like anticipations, instead of objective factors like prices, means that this purely theoretical study of money can never hope to reach results so tangible and precise as those which value theory in its more limited field can hope to attain. If I am right, the whole problem of applying monetary theory is largely one of deducing changes in anticipations from the changes in objective data which call them forth. Obviously, this is not an easy task, and, above all, it is not one which can be performed in a mechanical fashion. It needs judgment and knowledge of business psychology much more than sustained logical reasoning. The arm-chair economist will be bad at it, but he can at least begin to realise

¹ As we have seen, these risks are as much a matter of the period of investment as of the yield. For certain purposes this is very important. Thus, in the case of that kind of investment which consists in the starting of actual processes of production, the yield which is expected if the process can be carried through may be considerable; but the yield if the process has to be interrupted will be large and negative. Uncertainty of the period for which resources are free will therefore have a very powerful effect in interrupting production. Short-run optimism will usually be enough to start a Stock Exchange boom; but to start an industrial boom relatively long-run optimism is necessary.

² I am aware that too little is said in this paper about the liabilities side of the above balance sheet. A cursory examination suggests that the same forces which work through the assets side work through the liabilities side in much the same way. But this certainly requires further exploration.

the necessity for it, and learn to co-operate with those who can do it better than he can.

However, I am not fouling my own nest; I do not at all mean to suggest that economic theory comes here to the end of its resources. When once the connection between objective facts and anticipations has been made, theory comes again into its rights; and it will not be able to complain of a lack of opportunities.

Nevertheless, it does seem to me most important that, when considering these further questions, we should be well aware of the gap which lies behind us, and that we should bring out very clearly the assumptions which we are making about the genesis of anticipations. For this does seem to be the only way in which we can overcome the extraordinary theoretical differences of recent years, which are, I think very largely traceable to this source.

VII

Largely, but not entirely; or rather a good proportion of them seem to spring from a closely related source, which is yet not quite identical with the first. When we seek to apply to a changing world any particular sort of individual equilibrium, we need to know how the individual will respond, not only to changes in the price-stimuli, or anticipation-stimuli, but also to a change in his total wealth.¹ How will he distribute an increment (or decrement) of wealth—supposing, as we may suppose, that this wealth is measured in monetary terms?

It may be observed that this second problem has an exact counterpart in value theory. Recent work in that field has shown the importance of considering carefully, not only how the individual reacts to price-changes, but also how he reacts to changes in his available expenditure. Total wealth, in our present problem, plays just the same part as total expenditure in the theory of value.

In the theory of money, what we particularly want to know is how the individual's demand for money will respond to a change in his total wealth—that is to say, in the value of his

¹ The amount of money demanded depends upon three groups of factors: (1) the individual's subjective preferences for holding money or other things; (2) his wealth; (3) his anticipations of future prices and risks. Changes in the demand for money affect present prices, but present prices affect the demand for money mainly through their effect on wealth and on price-anticipations.

net assets. Not seeing any *a priori* reason why he should react in one way rather than another, monetary theorists have often been content to make use of the simplest possible assumption—that the demand for money will be increased in the same proportion as total net assets have increased.¹ But this is a very arbitrary assumption; and it may be called in question, partly for analytical reasons, and partly because it seems to make the economic system work much too smoothly to account for observed fact. As one example of this excessive smoothness, I may instance the classical theory of international payments; as another, Mr. Harrod's views on the "Expansion of Bank Credit" which have recently been interesting the readers of *Economica* and of the *Economist*.² It would hardly be too much to say that one observed fact alone is sufficient to prove that this assumption cannot be universally true (let us hope and pray that it is sometimes true, nevertheless)—the fact of the trade cycle. For if it were true, the monetary system would always exhibit a quite straightforward kind of stability; a diminished demand for money on the part of some people would raise the prices of capital goods and securities, and this would raise the demand for money on the part of the owners of those securities. Similarly an increased demand for money would lower prices, and this would lower the demand for money elsewhere. The whole thing would work out like an ordinary demand and supply diagram. But it is fairly safe to say that we do not find this straightforward stability in practice.

The analytical reason why this sort of analysis is unsatisfactory is the following: The assumption of increased wealth leading to a proportionately increased demand for money is only plausible so long as the value of assets has increased, but other things have remained equal. Now, as we have seen, the other things which are relevant to this case are not prices (as in the theory of value) but anticipations, of the yield of investment and so on. And since these anticipations must be based upon objective facts, and an unexpected increase in wealth implies a change in objective facts, of a sort very likely to be relevant to the anticipations, it is fairly safe to assume that

¹ Of course, they say "income." But in this case "income" can only be strictly interpreted as "expected income." And in most of the applications which are made, this works out in the same way as the assumption given above.

² The above was written before reading Mr. Harrod's rejoinder to Mr. Robertson. As I understand him, Mr. Harrod is now only maintaining that the expansion of bank credit *may* work smoothly. With that I am in no disagreement.

very many of the changes in wealth with which we are concerned will be accompanied by a change in anticipations. If this is so, the assumption of proportionate change in the demand for money loses most of its plausibility.

For if we assume (this is jumping over my gap, so I must emphasise that it is only an assumption) that an increase in wealth will very often be accompanied by an upward revision of expectations of yield, then the change will set in motion at least one tendency which is certain to diminish the demand for money. Taking this into account *as well as* the direct effect of the increase in wealth, the situation begins to look much less clear. For it must be remembered that our provisional assumption about the direct effect was only guess-work; there is no necessary reason why the direct effect should increase the demand for money proportionately or even increase it at all. So, putting the two together, it looks perfectly possible that the demand for money may either increase or diminish.

We are treading on thin ice; but the unpleasant possibilities which now begin to emerge are sufficiently plausible for their examination to be well worth while. What happens, to take a typical case, if the demand for money is independent of changes in wealth, so that neither an increase in wealth nor a diminution will affect the demand for money?

One can conceive of a sort of equilibrium in such a world, but it would be a hopelessly unstable equilibrium. For if any single person tried to increase his money holdings, and the supply of money was not increased, prices would all fall to zero. If any person tried to diminish his money holdings, prices would all become infinite. In fact, of course, if demand were so rigid, the system could only be kept going by a continuous and meticulous adaptation of the supply of money to the demand.

Further, in such a world, very curious results would follow from saving. A sudden increase in saving would leave some people (the owners of securities) with larger money balances than they had expected; other people (the producers of consumption goods) with smaller money balances. If, in their efforts to restore their money holdings, the owners of securities buy more securities, and the producers of consumption goods buy less consumption goods, a swing of prices, consumption goods prices falling, security prices rising, would set in, and might go on indefinitely. It could only be stopped, either by

the owners of securities buying the services of producers, or by the producers selling securities. But there is no knowing when this would happen, or where prices would finally settle; for the assumption of a rigid demand for money snaps the connecting link between money and prices.

After this, we shall be fairly inured to shocks. It will not surprise us to be told that wage-changes will avail nothing to stop either an inflation or a deflation, and we shall be able to extend the proposition for ourselves to interference with conventional or monopolistic prices of any kind, in any direction. But we shall be in a hurry to get back to business.

VIII

These exercises in the economics of an utterly unstable world give us something too mad to fit even our modern *Spätkapitalismus*; but the time which economists have spent on them will not have been wasted if they have served as a corrective to the too facile optimism engendered by the first assumption we tried. Obviously, what we want is something between the two—but not, I think, a mere splitting of the difference. This would give the assumption that an increase in wealth always raises the demand for money, but less than proportionately; if we had time, it might be profitable to work out this case in detail. It would allow for the possibility of considerable fluctuations, but they would not be such absurd and hopeless fluctuations as in the case of rigid demand.

However, I think we can do better than that. The assumption which seems to me most plausible, most consistent with the whole trend of our analysis, and at the same time to lead to results which at any rate look realistic, is one which stresses the probable differences in the reactions of different members of the community. We have already seen that a considerable proportion of a community's monetary stock is always likely to be in the hands of people who are obliged by their relative poverty to be fairly insensitive to changes in anticipations. For these people, therefore, most of the incentive to reduce their demand for money when events turn out more favourably will be missing; there seems no reason why we should not suppose that they will generally react "positively" to changes in their wealth—that an increase in wealth will raise their demand for money more or less proportionately, a fall in their wealth will diminish it. But we must also allow for the

probability that other people are much more *sensitive*—that an increase in wealth is not particularly likely to increase their demand for money, and may very well diminish it.

If this is so, it would follow that where the sensitive trade together, price-fluctuations may start on very slight provocation; and once they are under way, the rather less sensitive would be enticed in. Stock exchange booms will pass over into industrial booms, if industrial entrepreneurs are also fairly sensitive; and, in exactly the same way, stock exchange depressions will pass into industrial depressions. But the insensitive are always there to act as a flywheel, defeating by their insensitivity both the exaggerated optimism and the exaggerated pessimism of the sensitive class. How this comes about I cannot attempt to explain in detail, though it would be an interesting job, for one might be able to reconcile a good many apparently divergent theories. But it would lead us too deeply into Cycle theory—I will only say that I think the period of fluctuation turns out to depend, in rather complex fashion, upon the distribution of sensitivity and the distribution of production periods between industrial units.

Instead, I may conclude with two general reflections.

If it is the insensitive people who preserve the stability of capitalism, people who are insensitive (you will remember) largely because for them the costs of transferring assets are large relatively to the amount of assets they control, then the development of capitalism, by diminishing these costs, is likely to be a direct cause of increasing fluctuations. It reduces costs in two ways: by technical devices (of which banks are only one example), and by instilling a more “capitalistic” spirit, which looks more closely to profit, and thus reduces subjective costs. In doing these things, capitalism is its own enemy, for it imperils that stability without which it breaks down.

Lastly, it seems to follow that when we are looking for policies which make for economic stability, we must not be led aside by a feeling that monetary troubles are due to “bad” economic policy, in the old sense, that all would go well if we reverted to free trade and *laissez-faire*. In so doing, we are no better than the Thebans who ascribed the plague to blood-guiltiness, or the supporters of Mr. Roosevelt who expect to reach recovery through reform. There is no reason why policies which tend to economic welfare, statically considered, should also tend to monetary stability. Indeed, the presumption

is rather the other way round. A tariff, for example, may be a very good instrument of recovery on occasion, for precisely the reason which free-traders deplore; that it harms a great many people a little for the conspicuous benefit of a few. That may be just the sort of measure we want.

These will be unpalatable conclusions; but I think we must face the possibility that they are true. They offer the economist a pretty hard life, for he, at any rate, will not be able to have a clear conscience either way, over many of the alternatives he is called upon to consider. His ideals will conflict and he will not be able to seek an easy way out by sacrificing either.

Some Nineteenth-Century Irish Economists

By J. G. SMITH

IN the autumn of 1831 the Rev. Richard Whately, D.D., Principal of St. Alban's Hall, and Professor of Political Economy in the University of Oxford, was appointed Anglican Archbishop of Dublin. In October of the same year he entered on his new duties. The position was traditionally one of considerable dignity and influence; and although its political importance had been somewhat obscured by the Act of Union, 1800, and by Catholic Emancipation in 1829, enough of its old glories still remained to offer to an able occupant many opportunities for realising ideals other than those naturally pertaining to it in its strictly ecclesiastical sphere. Of these Whately took full advantage and for the next thirty-four years, until his death in 1865, he was an outstanding personality in every movement in Ireland which was concerned with education and with culture. It is not necessary here to pass judgment on his career as a whole or to assess the merits or demerits of his work as a Commissioner of National Education under the Irish Education Act of 1831, which often led to acrimonious controversy; but it is interesting to economists to observe that in the school readers which he helped to compile for Irish National Schools, a prominent place was occupied by a simplified and stimulating version of his Oxford Lectures and of his other more elementary tracts on Political Economy.

One of his first acts on reaching Dublin was to offer to the Board of Trinity College (of which he became a Visitor *ex officio*) an annuity of £100 for the endowment of a professorship of Political Economy on the model of the Drummond chair at Oxford. This he regularly paid until his death, when the Board of the College took over the obligation. Two of the "regulations on which the Professorship was originally established" are of special interest, for they largely determined the subsequent history of the study of Political Economy in

Ireland. "No person to hold the office for more than *five* successive years, or to be re-elected until after the expiration of *two* years"—"Every Professor to read . . . a Course of Lectures on Political Economy consisting of *nine* Lectures at the least and also, during every year, to print and present to the Provost, Senior Fellows and Visitors, one of such lectures at the least." Another condition, very stringently worded, inflicted the penalty of forfeiture of the whole of the stipend or salary for the year or years in which neglect to read the full number of Lectures took place or in which those entitled to the printed Lecture did not receive their due. The election to the chair was vested in the Provost and Senior Fellows of the college, who usually made the appointment after a written competitive examination of all eligible candidates. These conditions remained unaltered for more than fifty years.

The 'twenties and 'thirties of the nineteenth century in Ireland were a period of exceptional economic distress marked by rapid social changes and by considerable political and agrarian agitation. An extremely low standard of living, a wretched agricultural technique much inferior to that in England, considerable overpopulation and absolute refusal on the part of those who possessed capital to take the risks inherent in such a disordered society only magnified evils already serious beyond belief. For such a situation even the most indifferent of governments at Westminster had to seek remedies. There was, therefore, much discussion of economic problems among the educated classes in Ireland itself; and the palliatives suggested for the very parlous state of the country included encouragement of emigration, reorganisation of the system of land tenure, public works and the introduction of a Poor Law on the English model. So convinced were all observers of the need for action of some kind that Malthus and McCulloch testified before a Parliamentary Committee in 1827 that, notwithstanding the general rule of *laissez-faire*, the Irish situation justified removal of population by Government-assisted emigration or other similar means. Whately himself in the *Quarterly Review* in 1820, as well as in letters to Nassau Senior in 1832, wrote in like vein. By the date of Whately's arrival in Ireland the discussion had narrowed down to the consideration of the merits of assisted emigration and the institution of a poor law of the English type. A step forward was taken when the Home Secretary, Lord Melbourne, appointed a commission known as the Poor

Inquiry in 1833, which reported in 1835 and 1836, when Melbourne himself was Prime Minister, and which led to the passing of the Irish Poor Law in 1838. Largely on the advice of Nassau Senior, who was then an English Poor Law Commissioner, Whately was appointed Chairman of the Poor Inquiry. His experience, however, in this capacity was not a happy one; for he soon found that the Home Office had already decided on a poor law and did not welcome his well-meant efforts to draft a workable plan for emigration. Senior, who also was in favour of an emigration policy, endeavoured to comfort him by suggesting a translation to an English bishopric; but he stood his ground in Dublin, and Trinity College benefited by the continuance of his £100 annuity. Later in the 'forties, especially after the great famine in 1848, land reform problems tended to overshadow emigration questions in importance; but Whately by that time had found other more absorbing interests; and, as one of the ecclesiastical servants of the landowning class, he gladly left embarrassing discussions on land legislation to others. Such was the general economic background when the first appointment to the chair was made in 1832.

The first occupant was Mountifort Longfield, who had been elected a Fellow of the College in 1825. He had graduated in 1822 in Science (at that time chiefly Mathematics) and, as "Jurist," was exempted from the college statute which required fellows to take Holy Orders. He held the chair until 1836, when he became Professor of Feudal and English Law. Later, in 1847, he was appointed Commissioner of the Incumbered Estates Court, and in 1858 he became Judge of the Landed Estates Court. He died in 1884. His most important work is *Lectures on Political Economy*, eleven lectures delivered in 1833, printed and published to fulfil the conditions attached to his tenure of the chair. Their importance in the history and development of economic thought was pointed out, after they had been almost forgotten, by E. R. A. Seligman in his essay on "Some Neglected British Economists" and they constitute Vol. No. 8 in the series of Reprints of Scarce Tracts in Economics and Political Science issued by the London School of Economics. Contemporary problems were discussed by him in *Four Lectures on Poor Laws* (Dublin, 1834) and *Lectures on Commerce and Absenteeism* (Dublin, 1835). Both these works in style and treatment resemble his *Lectures on Political Economy*, and their scholarly detached discussions

form a very marked contrast to the ill-informed and much biased pamphlets which poured out in great abundance from the Irish printing-presses at that time. Later in life, after much experience in administering Irish land legislation, he contributed *The Tenure of Land in Ireland* to the Cobden Club Essays, 1870; and, before Political Economy and Law claimed him, he had written an *Elementary Treatise on Series*.

Longfield was succeeded by Isaac Butt (1813-79), who held the chair until 1841. Beginning as a classical scholar and an elegant translator of Virgil, Butt found himself Professor of Political Economy at the age of 23 with his real career still undetermined. He was called to the Bar in 1838 and soon made a reputation as an able advocate. At first his sympathies were with what might be called the Right in political and economic controversy. His brilliant but unavailing plea as counsel for the old Dublin Corporation before a committee of the House of Lords when the Municipal Reform Bill of 1840 was under discussion was rewarded by his election as an alderman of the City of Dublin in the following year; but the famines and land agitation of the 'forties won him over completely and he thenceforward devoted himself to advocacy of the tenants' views both in the law courts and in politics. He defended Smith O'Brien in the State trials after the abortive rising of 1848, and also the Fenians in the years 1865-9. He sat in Parliament for a brief period about 1859-60 and continuously until his death from 1871 as leader of the Home Rule party, of which he was founder and chief organiser. During his tenure of the Whately chair he published (in conformation with the conditions) *Rent, Profits and Labour* (1838). This is a scholarly work, though not highly original, owing much to Ricardo, but supplemented from Longfield and his own intimate knowledge of the contemporary Irish land situation. His other publications dealing with economic questions are almost entirely concerned with the Irish land problem. They are, usually, strikingly reasoned and scholarly productions, but they sometimes approximate to the political pamphlet; for they are the work of an idealist determined to effect reforms. A few of those still accessible in libraries include *A Voice for Ireland—the Famine in the Land, what has been done and what is to be done* (1847); *The Rate in Aid—a letter to the Earl of Roden* (1849); *The Transfer of Land by means of a Judicial Assurance: its Practicability and Advantages* (1857); *Fixity of Tenure, Heads of a suggested Legislative Enactment* (1866);

The Irish People and the Irish Land (1867); several expositions of the Landlord and Tenant Act of 1871; *The Irish Deep Sea Fisheries* (1874). Of these, *The Irish People and the Irish Land* is by far the longest and most important. It lays down without qualification that the State has a right to control the use of private property when the interests of the community require that this should be done. *Laissez-faire* in the case of Irish land was a dismal failure. There was much to be gained if the British Parliament could be induced to touch "even with the tips of their fingers" the heavy burden that English rule laid upon the Irish nation in the system of land tenure which it maintained. As a pamphleteer he is probably at his best in his letter controversies in *The Times* in the late 'sixties when he tackled Lords Lifford and Dufferin, two of the most prominent of the Irish landlord party. He was much interested in education and he also wrote on Italian history. As a "tenants' man" in the land agitation he was always on the poorly paid side in litigation in the courts. He was, therefore, never rich. Indeed, at times he was deeply in debt and his movements much circumscribed in consequence. He died a disappointed man, but his name, attached to an ugly turntable bridge over the river in Dublin (lately replaced by a slightly more dignified structure), often causes the curious to inquire who he was and what he did.

The next occupant of the chair was James Anthony Lawson (1817-87), whose tenure lasted the full five years to 1846. Like Butt he was professor at an early age (24), and like Butt he looked to practice at the Bar for his real career. But here the resemblance ceases. Lawson kept safely to the Right and in due course entered Parliament, becoming in turn Solicitor-General and Attorney-General for Ireland. In 1868 he reached the judicial bench as Judge of the Common Pleas. It fell to him to adjudicate at many criminal trials during the Land League agitation and the Fenian movement at the time of the Phoenix Park murders in the early 'eighties. He was a strict judge, determined to maintain law and order. It is not surprising, therefore, that an attempt was made on his life in the streets of Dublin in 1882. He did not make a great mark as a writer on Economics. He published but one work, *Five Lectures on Political Economy*, in 1844, in fulfilment of his obligations as professor; but during his period of practice at the Bar he occasionally printed single lectures on topics bordering on law and economics which must have been at that

time exceedingly suggestive and stimulating. The best known of these is *Duties and Obligations Involved in Mercantile Relations*, dated 1855.

In 1842 the list of new graduates of Trinity College with first-classes in Mathematics included William Neilson Hancock and John Kells Ingram. The 1846 list contained the names of Richard H. Walsh in Mathematics, William E. Hearn in Classics, and Thomas Cliffe Leslie in Ethics and Logics, all of significance in the development of economic studies, while that of John Elliot Cairnes appeared in 1847 among the first-classes, also in Ethics and Logics. This is a large group coming from a small college in a comparatively few years; but, even when allowance is made for the effects that the contemporary economic state of Ireland must have had on the minds of thoughtful undergraduates, it is difficult to resist the conclusion that Longfield, Butt and Lawson were stimulating teachers and inspiring leaders. The senior member of this group, William Neilson Hancock (1820-88), was Lawson's immediate successor. He held the chair for the full term to 1851 and, simultaneously for the last two years, the chair of Jurisprudence and Political Economy in the newly established Queen's College, Belfast. Like his predecessors he was a member of the Bar; but his talents were not of the kind required for success as an advocate in the Irish courts. After his resignation from Belfast in 1853 he acted as secretary to many Government commissions on land and education problems, held clerical posts in the Court of Chancery, and for the last six years of his life was Clerk of the Crown and Hanaper in Dublin. It was mainly due to his efforts that the Statistical Society of Ireland was founded in 1847. This was amalgamated in 1855 with the Social Inquiry Society of Dublin. He also founded the Social Inquiry Society of Belfast in 1851.

By his interest in Statistics and Social Inquiry he stands in strong contrast with the able orators who preceded him. He seldom published a long discourse or even a short course of lectures on Political Economy, but contented himself with articles and pamphlets. The list of these is a considerable one; but they are all of high standard. Many of them show great learning and a wide knowledge of foreign economic conditions. He endeavours to support his case wherever possible by statistics; and he never shirks conclusions indicated by data of this kind, although they may tell against the case

he is at the moment seeking to establish. Indeed, occasionally, in his struggle for detachment and impartiality he is not as critical of his figures as a modern statistician would desire; but he was too shrewd a mathematician to be wholly deceived by the imperfections of this kind of material. His articles and pamphlets fall into several groups. Of these the most important is that which seeks to demonstrate that the depressed condition of the Irish peasant was due to an unjustifiable system of land tenure and the absence, outside Ulster, of any right, legal or customary, on the part of a tenant farmer when giving up his farm to compensation for whatever improvements he may have effected during his occupancy. To this group belong: *The Tenant-right of Ulster considered economically*, (1845); *Impediments to the Prosperity of Ireland* (1850); *Two Reports for the Irish Government on the History of the Landlord and Tenant Question in Ireland with suggestions for legislation* (Dublin, 1859 and 1866); with several of later date discussing the successes and failures of the Irish Land Acts of the 'seventies and 'eighties. To another group belongs a number dealing with taxation and local government: *Observations on the question, how can Sir R. Peel's Income Tax be made more equitable* (Dublin, 1853); *Local Government Taxation in Ireland* (Cobden Club Essays, 3rd Series, London, 1875). It is interesting to note that he advocated a single tax based on income, with inherited wealth regarded as income for this purpose. A third group embraces a series of articles in which he exposed the evils of the Savings Bank system of the middle of the nineteenth century and advocated stricter government control and supervision. To this belong: *Duties of the Public with regard to Charitable Savings Banks* (1852); *The present state of the Savings Bank Question* (1855). Overlapping all these is a fourth group, papers mainly statistical, contributed for the most part to the *Journal of the Statistical and Social Inquiry Society of Ireland*; *Report on the Statistics of flax culture in Connaught and Munster in 1865* (Dublin, 1866); *Report on deposits and cash balances in joint stock banks in Ireland, 1840-69* (Dublin, 1870), followed by similar reports for subsequent years with additional figures referring to bank-note circulation: *Report on savings invested in Ireland in government funds, in joint stock banks and in savings banks, 1860-70* (Dublin, 1871); *Report on the supposed progressive decline of Irish prosperity* (Dublin, 1863), and many others. Of these the report on Irish prosperity is the best-known and of

most permanent interest; for, in addition to establishing facts which were somewhat surprising in the early 'sixties, it raises points in economic theory which are still of importance in discussions concerning international trade. From an early date in his career he was associated with Thomas Larcom, afterwards Sir Thomas Aiskew Larcom, K.C.B., who was originally a land surveyor engaged on the ordnance survey of Ireland. Larcom filled many other Government positions in turn, such as Census Commissionership, 1841, and finally the Under-Secretaryship for Ireland in 1853. From the nature of his work and of his training he was a statistician, and it was under his influence that Hancock carried out most of those investigations the results of which appeared in the *Journal of the Statistical and Social Inquiry Society*, and many of which would have been impossible without access to government records not generally available. A few students of Irish history tend to disparage this part of Hancock's work by asserting that it was produced for propaganda purposes under Larcom's orders and direction. It is difficult to see how this view can be maintained; for the internal evidence of the papers themselves is conclusive. Few writers escape such charges when they deal with highly controversial material relating to a situation which even now still stirs tempers in certain quarters. It is his detachment that constitutes Hancock's chief claim on the attention of historians. This is nowhere more evident than in these papers where figures are largely left to tell their own story.

John Kells Ingram (1823-1907), Hancock's contemporary of 1842, was elected Fellow of the College in 1846. He occupied, in turn, in the course of his long life the chair of Oratory and English Literature, the chair of Greek, the College librarianship and the College Vice-Provostship—an imposing list for a graduate in Mathematics. Economists now remember him for his many articles in encyclopædias and in dictionaries of Political Economy, for his dalliance with Comte and Positivism and for two of his publications dealing specifically with the development of economic thought: *Present Position and Prospects of Political Economy* (London, 1878); *History of Political Economy* (Edinburgh, 1888). He was an examiner on each occasion after his election to fellowship when an appointment was being made to the chair of Political Economy.

Richard Hussey Walsh (1825-62), who graduated in 1846,

succeeded Hancock in the Whately chair in 1851. He was a man of great ability; and his reputation as a clear thinker and able exponent was considerable. His statutory publication was his course of lectures entitled *An Elementary Treatise on Metallic Currency* (1853). This won the unreserved commendation of J. S. Mill and it was accepted generally as containing "a statement and proof of the true doctrine of money." It is an admirable examination and exposition of general monetary theory as it crystallised after the controversies which preceded the passing of the Bank Charter Act, 1844, and the Irish Bank Act of 1845. He subsequently contributed to the *Journal of the Statistical and Social Inquiry Society of Ireland* two other important papers on the same topic: "The price of silver in late years does not afford an accurate measure of the value of gold" (1855); "Observations on the gold crisis, the price of silver and the demand for it" (1856). He was too near the period of price dislocation caused by new discoveries of the precious metals to relate cause and effect as accurately as can now be done; but even for a modern reader he does not wander far astray in these contributions. Being a Roman Catholic at a time when religious tests were still enforced in Dublin, he was debarred from a permanent academic career at home. Shortly after the expiration, therefore, of the five years' permitted tenure of the Whately chair he went to Mauritius as an administrative education official. There he conducted the Census (in 1861) in the year before his early death in his 38th year. He was succeeded by John Elliot Cairnes, who occupied the chair from 1856 to 1861.

Cairnes moved to London in 1865 and in the following year was appointed Professor at University College. Thenceforth he falls into line with the dominant English school of this time, of which J. S. Mill was the recognised leader. Of his works, that entitled *The Character and Logical Method of Political Economy* appeared in its first edition in 1857 in satisfaction of the conditions of tenure of the Dublin chair and some of his lectures in subsequent years in Dublin were embodied in *The Slave Power*, which was published in 1862. In 1859 he was appointed to the chair of Jurisprudence and Political Economy at Queen's College, Galway, a position which he held in turn, simultaneously, with the other two chairs until 1870, when ill health caused his resignation after he had performed its duties by deputy for more than three sessions. In addition to his better-known works, *Essays on*

the Gold Question and Some Leading Principles of Political Economy newly expounded, which appeared after he had left Ireland, he wrote extensively on Irish education problems; and, like all the other Irish professors of Political Economy, he examined the problems of land tenure from a standpoint which appeared too liberal to the dominant conservative landowning class.

Walsh's fellow student, William Edward Hearn (1826-88), who was appointed to the chair of Greek in the new Queen's College at Galway in 1849, was in many ways the most remarkable of that very brilliant set. In 1851 he published *The Cassell Essay on the Condition of Ireland*, in which he examined the industrial resources of that country, set out the causes of existing evils and laid down remedies which, indeed, were far from heroic and which mainly consisted of suggestions for minor alterations in the law relating to land and the encouragement of emigration. In 1854 he went to Melbourne as one of the first professors in the newly established university there. His range of subjects, Modern History, Modern Literature, Logic and Political Economy, evoked unqualified admiration from the astronomer Airy, who was chairman of the committee making the appointments. In due course he entered Parliament in Victoria, codified the criminal law there, became Chancellor of the University, and at his death was one of the outstanding figures in Australia.

As an economist Hearn's reputation stands deservedly high. His work entitled *Plutology or the theory of the efforts to satisfy human wants* (1864) was described by Marshall as "at once simple and profound." In his preface he claims that the theory of wealth was neglected by previous writers in favour of the art of Political Economy. He then proceeds to analyse human wants, the satisfaction of which depends upon two chief factors, labour and natural agents, for which, in turn, he distinguishes natural and acquired power. Labour is helped in its handling of natural resources by such human devices as capital, invention, co-operation and exchange. Price, the expression of the act of exchange, is related to utility and cost of production. Although his training was literary his approach to economics was scientific and obviously much influenced by Darwin, Spencer and the theory of evolution. Jevons's compliments to him (pp. 296-7, *Theory of Political Economy*) are well known. They support the impression made on most modern students of this important work that if

Hearn had added a little knowledge of mathematics to his already extensive intellectual equipment he would have taken a more assured place among the real pioneers of modern economic science. Another work, *The Government of England, its Structure and Development* (1867), was declared by Spencer to have "helped to graft the theory of evolution on history," and was commended by Dicey as one of the best expositions of the English Constitution. In 1879 he published *The Aryan Household, its structure and its development, an introduction to Comparative Jurisprudence*, which was marked by the same scientific outlook; and he contributed a number of important papers on Economics and Politics to Australian periodicals which are not accessible to students in this hemisphere.

The place of the third of the 1846 group of graduates, Thomas E. Cliffe Leslie (1825-82), in the history of economic thought in this country is too well known for discussion here. Like most of his contemporaries he was called to the Bar and for a time he practised in England. In 1853 he succeeded Hancock in the chair of Political Economy and Jurisprudence in Belfast, but the duties of that position were still comparatively light and he continued to reside in London. Apart from his *Essays in Political Economy* (Dublin and London, 1879), by which he is now principally remembered and in which he defended and advocated the historical method as the proper approach to economic problems, he wrote extensively on the land systems of Ireland, England and Continental countries. Peasant proprietorship attracted him much; and, while rarely entering into current political controversy, he indirectly advocated this system of land tenure as a remedy for the evils of the wretched state of Ireland. He occupied the chair in Belfast until his death in 1882.

Cairnes's successor in Dublin in 1861 was Arthur Houston, who had graduated three years earlier at the ordinary degree examinations of 1858. Houston held the chair until 1866 and the lectures he printed in satisfaction of the conditions of tenure are accessible in two publications: *An essay on the Emancipation of Women from existing Industrial Disabilities* (London, 1862, in *Tracts on Taxation*, 1861-3) and *The Principles of Value in Exchange explained and expressed in simple and comprehensive formulæ, being two lectures delivered in the University of Dublin*, 1864. A more important work by him, *A Manual of Hindu and Muhammadan Law*, appeared in 1863, and in the same year he wrote *The English Drama, its past history*

and possible future, which was based on a series of afternoon lectures on English literature delivered to fashionable audiences in Dublin in the early part of 1862. Everything Houston wrote is elegant in style and exceedingly readable; but it is evident that his real interests lay in the study of Comparative Law rather than of Economics. Among his rivals at the competitive examination in 1861 was Leonard H. Courtney (afterwards Lord Courtney of Penwith), who was, two years later, a candidate also for the Cambridge chair of Political Economy. Courtney on this latter occasion submitted a testimonial from Cairnes, who had been one of the examiners in Dublin in 1861. This document, which took the form of a letter¹ to Pryme (the retiring Cambridge professor), is a delightful example of the kind of intellectual gymnastics which all college tutors and university professors have regularly to perform when they endeavour to explain away a second class in finals on behalf of a pupil who vainly expected a first. Its chief interest now is for the light it sheds on the methods pursued in making appointments to the Whately chair. The marks awarded by four examiners were added up and the recipient of the highest total was selected; but Cairnes in 1861 seems to have recommended Courtney, although he himself, too, independently of the other examiners, placed Houston on his list "first in the numerical total." It is difficult to see why he did not place Courtney first if he really considered him the better man; but it is possible that his friendship for Courtney, which had developed considerably in the meantime, may have made him ascribe to 1861 a confidence in an opinion which did not fully mature until 1863. It is interesting to note that F. Y. Edgeworth was a foundation scholar in Classics in Dublin for two years during Houston's tenure of the chair. Now Edgeworth was of the landlord class, which sent many able scholars and administrators to Trinity College during the nineteenth century. Few of these, however, developed much interest in the study of Economics; and it is significant that Edgeworth himself in the course of his long life published nothing which showed insight into or understanding of the difficult questions of Irish land tenure, which must have been familiar to him and on the successful handling of which much of his family's income depended. When, late in life, he inherited the remnants of the family estates, he developed a mild interest in

¹ Gooch, *Life of Lord Courtney*, London, 1920, p. 55.

Sir Horace Plunket and the agricultural co-operative movement; and he wrote a few reviews in the *Economic Journal* of books on Irish farming. But these were slight and they do not disprove the truth of the statement that while the land problem, emigration questions, low standards of life and the famines of the 'forties had little effect on the complacency of the Irish landowners and their families, whose faith in economic *laissez-faire* remained unshaken, they profoundly stirred the middle and professional classes, one of the results of which was the appearance of this group of thinkers, who deserve an honoured place in the history of economic thought.

Market Imperfection and Excess Capacity

By NICHOLAS KALDOR

OF all the doctrines emerging from recent work on the economics of imperfect competition, none appears more intellectually striking or more significant from a practical point of view than the doctrine of "excess capacity." It is intellectually striking, because it admits possibilities which the traditional "laws of economics" seem to have excluded: e.g. that an increase in "supply" may be followed by a rise in price.¹ And it is practically significant, because if the main contentions of the theory are found to be correct, it affords some reasons for interfering with the "free play of competitive forces" on grounds upon which traditional economic theory would have dismissed the case for interference. The theory envisages a situation, where, on the one hand the market facing a group of competing firms is, for one reason or another, not absolutely "perfect," while on the other hand the entry of resources into the "industry" is free, and it shows that under such conditions "competition" (i.e. the free flow of resources into uses where they expect to obtain the largest net remuneration) will drive each producer to a situation in which it is not using its resources to the best advantage; and it will thus lead to a reduction of the physical productivity of resources all round. In a sense, it thus reverses the old argument about "increasing returns" and monopoly; it not only says that falling costs will lead to monopoly but that a monopolistic or rather a pseudo-monopolistic situation² will automatically lead each firm to a position where it is faced with

¹ Since Marshall, we are aware of the fact that given certain cost conditions an increase in demand may be followed by a fall in price. But neither the Marshallian, nor, so far as the present writer is aware, any other theoretical system left room for the possibility that under certain market conditions, an increase in the number of sources of supply (an inflow of resources into the "industry") could lead to a rise in prices.

² We shall see later what precisely the term "monopolistic" implies in this connection.

falling average costs.¹ It is a highly ingenious and one might almost say revolutionary doctrine: it shows up "free competition" (i.e. the freedom of entry into any trade or industry) not in the traditional and respectable role as the eliminator of the unfit but in the much more dubious role as the creator of excess capacity. It affords an excellent theoretical background for the age-old cry of business men about the "wastes of competition"—so far completely neglected by the economists. It is worth while therefore to examine this theory in some detail.

The theory is put forward both in Professor Chamberlin's recent work and also in Mrs. Robinson's book.² Closer inspection reveals, however, that Mrs. Robinson's version possesses a merely formal similarity with Professor Chamberlin's theory. For Mrs. Robinson includes in her "cost curves" such profits which are not competed away by the entry of new producers; and under the circumstances, her statement that "demand curves will be tangential to cost curves" and that firms will be of "less than their optimum size" is merely a statement of a tautology.³ It does not imply "excess capacity" or anything of that sort. In the subsequent analysis we shall follow therefore mainly Professor Chamberlin's statement of the theory.

II

The main argument can be stated briefly. Although not stated so explicitly, it is really based on four assumptions.

¹ "Falling average costs," if they are to be regarded as the criterion of "excess capacity" should be interpreted that in the relevant output, costs are falling in a state of long-period equilibrium (after all adjustments have been made to that output), which also implies that variable costs are falling (since in the long run the supply of all factors—even the resources supplied by the entrepreneur himself—can be assumed variable and consequently there are no "fixed" costs). Since in a state of full equilibrium "short-run" cost curves must be tangential to the long-run cost curve: falling long-period costs also imply that short-run total costs are falling. But the converse is not necessarily true; falling short-run total costs (the "fixed costs" being calculated on a "historic" basis) need not involve falling long-run costs, for the same output, and consequently these are no safe criteria for the prevalence of excess capacity.

² Chamberlin, *The Theory of Monopolistic Competition*, Ch. V. Mrs. Robinson, *The Economics of Imperfect Competition*, Ch. 7. The theory of course, is by no means completely new. Wickseil already stated it (*Lectures*, p. 86) and it is also to be found, in essentials, in Cairnes' *Political Economy*, p. 115. It was outlined in P. Sraffa's well-known article ("The Laws of Returns under Competitive Conditions," *Economic Journal*, 1926). The first systematic exposition is, however, Chamberlin's.

³ Cf. on this point G. F. Shove, "The Imperfection of the Market" (*Economic Journal*, March, 1933), an article, which in the present writer's view, contains one of the most penetrating analyses so far published on this whole subject.

Firstly, it is assumed that there are a large number of independent producers, each selling one product only, which is "slightly different" from the products of the rest of the producers. The words "slightly different" imply, that while the demand for the product of any of the producers is highly sensitive to the prices charged by the others, yet this sensitiveness is never so great as to compel all producers to sell at the same price. It implies that a producer, by lowering his price relatively to his competitors' prices, will attract away some, but not *all* their customers; or alternatively, that he will lose some, but not all of his own customers, if he raises his price relatively to the rest.¹ It is assumed, secondly, that "*consumers' preferences are fairly evenly distributed among the different varieties,*"² and since there are a large number of them "any adjustment of price or of 'product' by a single producer spreads its influence over so many of his competitors that the impact felt by any one is negligible and does not lead him to any readjustment of his own situation."³ Thus, given the prices of all the others, a "demand curve" can be drawn up with respect to the product of each.⁴ Thirdly, it is assumed that no producer possesses an "institutional monopoly" over any of the varieties produced and thus the entry of new producers "into the field in general and every portion of it in particular is free and unimpeded." Fourthly, the long-run cost curves of all producers are assumed to be falling up to a certain rate of output; in other words, it is assumed that up to a certain output, there are "economies of scale" (Professor Chamberlin's cost curves are U-shaped, i.e. they begin to

¹ In technical terms this implies that the consumer's "elasticity of substitution" between the different producers' products is large, but not infinite; which is the same thing as saying that the "cross-elasticities of demand" (the elasticity of demand for one producer's product with respect to another producer's price) are considerable but not infinite. Looking at it in this way, "monopoly" and "perfect competition" appear as the two limiting cases, where the "cross-elasticities" are zero or infinite, respectively; and there can be little doubt that the large majority of industrial producers in the real world are faced with imperfect markets in this sense.

² Which implies, in the above terminology, that the cross-elasticity of the demand for the product of any producer is of the same order of magnitude with respect to the price of *any* of his competitors. Cf. my article, "Mrs. Robinson's Economics of Imperfect Competition," *ECONOMICA*, August, 1934, p. 339.

³ Chamberlin, p. 83. Mrs. Robinson does not state this so definitely, but her analysis is implicitly based on the same assumptions. Professor Chamberlin states (pp. 82-3) that he only makes these assumptions temporarily in order to facilitate the exposition, and removes them later on (pp. 100-11). But, as I shall try to show, the theory, in its rigid form at any rate, really stands or falls with these assumptions.

⁴ In the absence of these assumptions one can speak of a demand curve only in the sense of an "imagined demand curve," cf. below.

rise after a certain point. But while the legitimacy of the latter assumption in the case of long-run curves appears doubtful,¹ it does not affect his argument, which merely requires that costs should be falling over a certain range.) The elasticities of the demand curve and the cost curves of each producer are also assumed to be the same, but this, as I shall try to show, is not essential to the main argument so long as "institutional monopolies" are assumed to be absent. Now, given these two curves each producer will try to produce that output which will maximise his own profits, i.e. equate marginal revenue with marginal cost. But since marginal revenue is less than price, price will be higher than average cost (including under the latter the displacement cost of the resources supplied by the entrepreneur himself) unless average cost is also, and to a corresponding degree, higher than marginal cost (which it can only be if average costs are falling). Let us assume that this is not the case initially. Entrepreneurs in the industry will then make "monopoly profits," i.e. remuneration for their own resources will be higher than that which similar resources could earn elsewhere. This will attract such resources into the "industry"; new firms will come in, producing new substitutes, which will reduce the demand for all existing producers; and this process will continue, until profits are reduced to normal, i.e. the difference between the actual earnings and the displacement costs of the entrepreneur's own resources is eliminated. In the position of final equilibrium not only will marginal cost be equal to marginal revenue, but average cost will also be equal to price. The demand curve will thus be "tangential" to the cost curve. The effect of the entry of new competitors will not necessarily reduce the price of existing products; it may even raise them. The profits which the entrepreneur no longer earns will thus not be passed on to the consumer in the form of lower prices but are mainly absorbed in lower productive efficiency. The producers, *as a body*, could of course prevent this from occurring by reducing their prices *in anticipation* of the entry of new competitors. But since the appearance of any *single* new producer will only affect the demand of a *single* existing producer very slightly, while similarly the reduction of price of a *single* existing producer will only slightly affect the profits which a potential producer can expect, no producer could

¹ Cf. my article, "The Equilibrium of the Firm," *Economic Journal*, March, 1934, p. 70.

take these indirect effects on his own price policy into consideration.

There can be little doubt that given these assumptions the theory is unassailable. Any criticism therefore must be directed against the usefulness and the consistency of the assumptions selected.

III

1. The first of these concerns the assumptions made about the interrelations of the demand for the products of various producers (which are substantially the same as those underlying Mrs. Robinson's conception of an "imperfectly competitive industry" ¹). No doubt, in most cases, the products of various producers selling the same sort of goods are not "perfect substitutes" to each other in the sense that the slightest price difference would eliminate all demand for the products of higher-price producers. The reasons for such "market imperfection" may be classed under one of three headings. There may either be slight differences in the products themselves (as in the case of motor cars, wireless sets, etc., the absence of "standardisation"); or differences in the geographical location of producers in cases where the consumers themselves are distributed over an area; or finally, there may exist a certain "inertia" on behalf of the buyers themselves who will require either some time, or a certain magnitude in the price-difference, before they make up their minds to buy from another seller—even if they are quite indifferent as between the products of different sellers.² Whatever the cause, the effect, from the analytical point of view, will be the same: the "cross elasticities" of demand

¹ Cf. *The Economics of Imperfect Competition*, Ch. 1. Cf. on this point my review, *op. cit.*, p. 339.

² It might be objected that anything which causes a lack of indifference between buyers will make the products "imperfect substitutes" in relation to each other (since the consumers' attitude is the final criterion for classifying "products") and consequently no distinction can be made out between "buyers' inertia" and "product-differentiation" as causes of market imperfection. There is, however, a very good reason for keeping them separate. Whereas in the ordinary case of imperfectly substitutable commodities the consumers' "elasticity of substitution" between two products is symmetrical (i.e. a given change in the price ratio will cause a given change in the relative quantities demanded, whichever of the two prices has moved relatively to the other) this is by no means the case when the lack of indifference is merely due to the inertia of buyers. In the latter case, one cannot even speak of a given "marginal rate of substitution," since this rate will be different according to the direction of the change.

will have a positive finite value. But is there any justification for the further assumption that they will also be of the same order of magnitude with respect to the prices of *any* group of rival products? Can we say that any adjustment of price or of "product" by a single producer will spread its influence evenly over all his competitors? No doubt, cases are conceivable when it would. When the "imperfection of the market" is due to sheer buyers' inertia *and nothing else*, we could invoke the law of large numbers and say that the buyers who no longer buy from A, will pair themselves more or less evenly with B, C, D. . . . But buyers' inertia, though an important factor in practice, is rarely found in isolation as a cause of market-imperfection. It is generally coupled with either or both of the other causes.¹ And in these cases, it is clear that the different producers' products will never possess the same degree of substitutability in relation to any particular product. Any particular producer will always be faced with rivals who are nearer to him, and others who are "farther off." In fact, he should be able to class his rivals, *from his own point of view*, in a certain order, according to the influence of their prices upon his own demand (which will not be necessarily the same order as that applying to any particular rival of his). This is clear in the case where "market imperfection" is merely due to differences in the geographical location of producers. It is equally true in cases of "product-differentiation." Savile Row tailors will be most influenced by Savile Row prices; they will be less concerned with fluctuations in the price of East-end clothes.²

"Pseudo-monopolists"—distinguished from the old-fashioned "real monopolists" merely by the fact that the "cross-elasticities of demand" for their product is large—thus cannot be grouped together in a lump but can at best be placed into a series. Each "product" can be conceived as occupying a certain position on a "scale"; the scale being so constructed that those products are neighbouring each

¹ Moreover, the case where market-imperfection is *merely* due to buyers' inertia is not a very good one from the point of view of this theory: since it always implies the presence of "institutional monopoly" as well. Cf. p. 45.

² It is conceivable that the "scale of preferences" of different consumers should differ in just that degree as to eliminate the differences in the degree of substitutability of different products for the body of consumers as a whole. (If individual X regards product B as a nearer substitute to A than either C or D, but Y regards C as a nearer substitute than either B or D, while Z regards D as the nearest substitute to A, then the prices B, C, D may have the same influence on the demand for A.) But this is a rather improbable supposition.

other between which the consumers' elasticity of substitution is the greatest (a "product" itself can be defined as a collection of objects between which the elasticity of substitution of all relevant consumers is infinite). Each producer then is faced on each side with his nearest rivals; the demand for his own product will be most sensitive with respect to the prices of these; less and less sensitive as one moves further away from him. "Product variation" by an individual producer can then itself be represented as a movement *along* the scale; and, given the position of all other producers, each producer will tend to settle at that point on the scale where his anticipated profits are the greatest. New entrants must also occupy a position on that scale, and will thus necessarily make the chain of substitutes "tighter."

The idea of such a "scale" can best be envisaged in the case of the simplest type of market-imperfection: the distribution of consumers over an area. Let us assume that all consumers are situated along a road (a kind of "ribbon development"), they are of an even degree of density, and all of them have an equal desire to buy. They are completely indifferent as between the products of different sellers; or rather the only difference consists in respect to transport costs (which can be equally regarded to be borne either by the buyers or the sellers). Under such conditions, sellers will tend to settle at equidistant points from each other along the road,¹ and thus they are all "pseudo-monopolists," since no two producers sell from the same spot.² Looked at from the point of view of any seller, a change of price by any other particular seller (the prices of the rest being assumed as given) is less and less important for him, the further away that particular seller is situated.

It follows from this, first, that even when the number of producers is large (the chain of substitutes tight) it cannot be assumed that the effect of a single producer's action will spread itself *evenly* over a large number of his rivals and will be negligible for each of them individually. The other producers'

¹ If only there are more than two of them, cf. Chamberlin p. 196, where Professor Hotelling's relevant theorem is corrected.

² The assumption that "institutional monopolies" are absent, implies in this case, that any seller *could*, if he wanted to, move to the same spot as that occupied by any other seller (or so near to it as to eliminate differences in transport costs) and thus make his own product "indistinguishable" from that of the other. Neglect to distinguish between these two cases of "monopolies" has been the source of much confusion in the past.

prices and "products" thus cannot be assumed as "given" in drawing up the demand schedule for the first; and the real demand curve for a single producer's product is thus indeterminate (depending on any of the large numbers of possible reactions in which his rivals might indulge).¹ The problems of "duopoly" are thus not merely concomitants of a situation where there are a "small number of producers" but arise in all cases where producers are selling substitute products, since the fact of "imperfect substitutability" necessarily involves the presence of the "scale" and thus of the "small number." "Duopoly" is thus seen not as a special class by itself but rather as "the leading species of a large genus."

Secondly, it can just as little be assumed that "new products" (the products of new or prospective entrants) will stand in the same or similar relation with *all* existing products. A new product must necessarily be placed in between two existing products; and will thus make considerable inroads into the markets of his nearest neighbours. Thus a producer, if far-sighted, will take the effect of his own actions not merely on his existing competitors into consideration but also on his *potential competitors*.² He will act on the basis of an "imagined demand curve" which shows the amount he can sell at different prices in the *long run*, under the assumption that his competitors' products, prices, and the number of his competitors are all adjusted to his price. If a producer knows that if he charges a high price to-day a competitor will appear to-morrow whose mere existence will put him in a *permanently worse position*, he will charge a price which will afford him only a low profit, if only he hopes to secure this profit

¹ Which does not imply that each producer will not base his policy upon certain ideas concerning the relation between the demand of his product and its price. But this "imagined demand curve" is based on certain expectations concerning his rivals' behaviour as a result of changes in his own policy; irrespectively whether these expectations are correct or not. Such an "imagined demand curve" is always determinate (since something must always exist in the producer's own mind). But it is a different sort of thing from the "demand curves" of traditional analysis which always implied an *objective* relationship between price and the quantity demanded. For a fuller treatment of the distinction between a real and an imagined demand curve, cf. my previous article quoted above (ECONOMICA, August, 1934, p. 340.).

² If a producer takes into account the consequences of his own policy on his *existing* competitors, this will probably induce him to charge a higher price than otherwise (will make his "imagined demand curve" less elastic). But if he takes *potential competition* into account, this will probably induce him to charge a price lower than otherwise (make his imagined demand curve more elastic). "Potential competition" implies both (a) the appearance of a new rival, (b) the possibility of "product-adjustment" rather than price-adjustment by an existing rival.

permanently; i.e. he will act in a manner *as if* his own demand curve were very much more elastic than it is. And this "foresight" will, or at any rate may, prevent him from being driven to a state of "excess capacity."¹

2. Moreover, it can be shown that even if none of the producers takes the indirect effects of his own policy into consideration² "potential competition" will never succeed in making the individual demand and cost curves tangential, if "economies of scale" exist; while the possibility of "product-differentiation" will by itself never prevent the establishment of "perfect competition" if "economies of scale" are completely absent. Demand curves and cost curves therefore will only become necessarily "tangential" to each other when "demand curves" have also become horizontal.

In order to prove this, let us again take the simplest case of market imperfection which is at the same time the one most favourable to the "excess capacity" theory: when it exists solely on account of the spreading of consumers over a large area. Let us again assume that consumers are evenly distributed over the whole area; that they have no preferences whatever as between the different sellers; and that the cost functions of all producers are identical. The demand curves of individual sellers will be "downward sloping" solely on account of the increase in transport costs as more is sold. Let us assume that producers are situated at equal distances from each other and that they all make "profits" (sell at prices which more than cover average displacement costs). Let us assume that new producers enter the field. Each producer's market will be smaller; the elasticity of demand, at any price, higher than before. But if we assume that economies of scale are completely absent (i.e. long-run cost curves are horizontal) profits will never be eliminated altogether so long

¹ Whether it will do so or not, will depend on the relative willingness and ability of bearing losses—on behalf of the "existing producer" and the "new entrant." For let us assume that a producer reduces his price in anticipation of the entrance of new competitors. If the "new producer" comes in nevertheless, *at the ruling price*, both will be involved in losses. But there will be some higher price at which both will make some profits; and if the new entrant can induce the old producer to raise his price to that level he can thereby secure his place on the "scale" permanently. If on the other hand, the old producer persists in charging the low price, one of them will have to drop out. (In so far as "buyers' inertia" is present at all, there is always a presumption that such a price-war will cost less to the old producer than the new one.)

² I.e. they all act on the basis of an "imagined demand curve" which corresponds to a "real demand curve" drawn on the assumption that the prices and "products" of all other producers remain the same, irrespectively of what the first producer is doing (which is the assumption underlying Professor Chamberlin's demand curves).

as the elasticity of demand is less than infinite. For each producer can always recover some of his lost profits by reducing output up to the point where marginal revenue equals marginal cost (which in this case, also equals average cost). The inflow of new producers will continue, leading to a continuous reduction in the output of existing producers and a continuous increase in the elasticities of their demand until the latter becomes infinite and prices will equal "average costs." There the movement will stop. But each "firm" will have reduced his output to such an extent that he has completely lost his hold over the market.

We see therefore that the mathematical economists in making "perfect competition" as their starting point, weren't such fools after all. For they assumed perfect divisibility of everything; and where everything is perfectly divisible, and consequently economies of scale completely absent, "perfect competition" must necessarily establish itself solely as a result of the "free play of economic forces." No degree of "product-differentiation" and no possibility of further and further "product-variation" will be sufficient to prevent this result, so long as all kinds of "institutional monopolies" and all kinds of indivisibilities are completely absent.

Let us now introduce indivisibilities and economies of scale. The movement of new "firms" into the field will then not continue until the elasticities of demand for individual producers become infinite; it will be stopped long before that by the increase in costs as the output of producers is reduced. *But there is no reason to assume that it will stop precisely at the point where the demand and cost curves are tangential.* For, on account of the very reason of "economies of scale" the potential producer cannot hope to enter the field profitably with less than a certain magnitude of output; and that additional output may reduce demand, both to his nearest neighbours and to him, to such an extent that the demand curves will lie *below* the cost curves and all will be involved in losses. The interpolation of a third producer in between any two producers may thus transform "profits" into "losses." *The same reason therefore which prevents competition from becoming "perfect"—i.e. indivisibles—will also prevent the complete elimination of "profits."* It will secure a "monopolistic advantage" to anybody who is first in the field and merely by virtue of priority. The ultimate reason for this being that it is not the original resources themselves, but the various uses

to which they are put that are indivisible—you can divide “free capital” but you cannot invest *less* than a certain amount of it in a machine—and consequently the investment of resources cannot be so finely distributed as to equalise the level of marginal productivities.¹

The above argument does not hold, if we assume as Professor Chamberlin assumed at the start, that consumers’ preferences are *evenly distributed* over the whole field; and consequently the entry of a new firm affects *all* existing firms to an equal degree. Then the demand for each is only reduced by an insignificant amount by a single new entrant; and consequently the number of firms could increase with impunity until profits are completely wiped out and the demand curves become “tangential.”

That Professor Chamberlin is aware of our first objection is clear from his analysis of chain-relationships on pp. 102-4 of his book. That he is also aware of the second is clear from certain remarks in connection with spatial competition on p. 199. It would be most unfair therefore to criticise him on a point of logic—since the logic of Professor Chamberlin’s analysis is indeed excellent. What he does not seem to be aware of is the degree of unreality involved in his initial assumptions; and the extent to which his main conclusions are dependent on those assumptions.

3. So far we have not mentioned the most frequent and conspicuous objection against the “excess capacity” theory: that it assumes “identical cost and demand curves” for the different producers. In our view, this is no valid criticism on Professor Chamberlin’s assumptions. The identity of the demand curves merely ensures that the *prices* of different producers will be identical. But since producers are free to vary the quality of their product as well as their price, differences in elasticity will not save producers from being driven to a position of “tangency”—although they may reach this position by selling at different prices. The identity of the cost curves—in the *required sense*—follows on the other hand from the assumption of the absence of any “institutional monopoly.” It is assumed, that is to say, that every producer, *could*, if he

¹ This brings out clearly also the objection against Mrs. Robinson’s “normal profits.” We see how the level of profits in each firm—the difference between its actual remuneration and the displacement cost of its earnings—is determined by the degree of indivisibility which acts as a “protective shield” against intruders. There is no more reason to assume these profits to tend to a “normal” level than there is to assume that the extent of indivisibilities is the same in all cases.

wanted to, produce commodities completely identical to those of any other producer—if he does not, this is merely because he would not find it profitable to do so.¹ Such “institutional monopolies” may consist of patents, copyrights, trade-marks or even a trade-name. They may be conferred by law, by ownership, or merely by the will of the public. If the public *prefers* to buy from Messrs. Smith and Robinson and thus the name of the seller becomes part of the “quality of the product,” then Messrs. Smith and Robinson have an “institutional monopoly” of their products. They possess something which others cannot possess. Similarly, if the entrepreneur *owns* resources which are *relatively* better fitted for the production of some varieties than the resources over which other entrepreneurs have command, he has exclusive control over resources which to that extent are unique: and this also implies the presence of some “institutional monopoly.”² Consequently, in the absence of these, since the relative costs of producing different varieties must be the same for the different producers, their cost curves, *for each single variety*, must also be identical.

It might be objected, that “institutional monopoly” thus defined, covers a much larger number of cases than what is generally understood by this term. Indeed, one could make out a nice distinction between the possession of an “absolute” monopoly (when no other producer is able to produce a completely identical product at *any* cost) or a comparative or “partial” monopoly (when no other producer is able to produce the same product at the same relative cost). But as all “products” are more or less close substitutes for one another, this distinction becomes analytically unimportant since it comes to the same thing whether producer B can produce merely a “more or less close substitute” to A—or whether he can produce the *same* product but only at a higher cost than A.³ Anything therefore which imposes higher costs on one producer than another (whether it is due

¹ Professor Chamberlin does not state this explicitly; but this is the only logically consistent interpretation one can give to his assumption that “the entry of new producers into the field in general and every portion of it in particular is free and unimpeded.”

² This implies in our terminology that every producer is free to move along and settle at any point of the “scale,” he can get therefore “as near to” the products of any other producer as he wants without incurring higher *relative* costs.

³ In order to avoid misunderstanding it must be pointed out that the absence of “institutional monopoly” does not imply that the abilities of each entrepreneur, and consequently the *absolute level* of their costs, are identical.

⁴ In both cases producer B will obtain smaller total receipts for the same total outlay.

to the possession of "unique" resources by one entrepreneur or whether it is merely due to "buyers' inertia"¹ imposing a special "cost of entry" on new producers) implies, to that extent, the presence of "institutional monopoly."

Such "institutional monopolies" of course are never completely absent. Their presence—though as we have seen in the last section, is by no means essential—may even be directly responsible for a large part of market imperfection—as Professor Chamberlin himself so convincingly shows in his appendix in favour of "unfair trading." They cannot therefore usefully be assumed absent when a situation is analysed which is often largely bound up with them. And what does the situation look like when they are not absent?

If the "scale of differentiation" of the consumers can be regarded as given (as e.g. in the previous example, when the degree of substitutability of different "products" was rigidly determined by the level of transport costs) institutional monopoly, to the extent to which it is present, will prevent the generation of "excess capacity"—since to that extent, "profits" earned by one producer cannot be competed away by another producer. Many types of "institutional monopolies" however, by themselves increase the degree of market imperfection, and to that extent are favourable to the generation of "excess capacity."² The sudden appearance of buyers' inertia, for example, has the double effect of reducing the elasticity of demand for the individual products and of imposing a cost of entry on potential competitors; these two opposing tendencies may cancel out, or the net effect may go in either direction.

¹ What we designated above as "sheer buyers' inertia" (i.e. that consumers require either a certain lapse of time, or a certain minimum of price-difference before they change over from one seller to another, even if they are otherwise completely indifferent between the different sellers' products) is merely a special case of "institutional monopoly"; since it always imposes a differential advantage on the existing producer relatively to the new entrant. The mere existence of specialised durable plant, however, does not imply such a differential advantage in the long run, although it may prevent adjustments being undertaken in the short run.

² The difference between these two types of "institutional monopolies" (the one which affects merely the relative costs of different producers, and the other which affects the elasticities of the demand curves for products as well) can best be elucidated by examples. A legal patent for a certain cheap process of producing ordinary window glass will not lead the consumers to differentiate between glass produced by one process or another. It will merely have the effect of imposing higher costs upon anybody who does not possess the patent. A trade-mark protecting a certain soap or medicine may lead, however, the consumers to differentiate between different soaps or medicines; and thus reduce the elasticity of demand for the products of each producer.

To sum up the results of the above argument. The extent to which "excess capacity" may be generated as a result of "free competition" (under the assumption that the existence of "economies of scale" will prevent this competition from becoming "perfect") will depend : (i) On the degree of "short-sightedness" or "far-sightedness" of producers (how far they take potential competition into account in deciding upon their price- and product-policy). This is a question of business psychology rather than economics. (ii) The extent to which "institutional monopolies" are present. This, as we have seen, will tend to prevent the generation of "excess capacity" if it leaves the scale of differentiation unaffected; while it will have an uncertain effect if it increases the scale of differentiation as well. (iii) The extent to which the market-situation resembles a "chain relationship" (in Professor Chamberlin's terminology), i.e. the extent to which the various "cross-elasticities" of demand differ in order of magnitude. Only in the special case when they are all of the same order of magnitude will Professor Chamberlin's conclusion (that demand curves will be tangential to cost curves) necessarily follow. At the same time, there is a presumption that some degree of "excess capacity" will be generated even if profits will not be completely competed away: since "indivisibilities," by themselves, will not offer a strong enough shield to prevent *some* rise in costs as a consequence of the intrusion of new competitors. Many of the objections therefore which can be brought against the theory if put forward in its *rigid* form (that demand curves will tend to become "tangential" with the cost curves), do not affect the fundamental proposition that the effect of the competition of "new entrants" and consequent reduction of the level of profits earned may take the form of a rise in costs rather than a reduction of prices.¹

¹ Professor Chamberlin's analysis is most valuable also in throwing light upon the probable consequences of all monopolistic agreements which refer to selling prices rather than quantities produced. It explains why, if a uniform taxi-fare is imposed, one will find too many empty taxis about. Or if the code of "professional etiquette" prevents doctors and lawyers from undercutting each other, sooner or later they will all complain that they are "under-employed." Or if manufacturers' cartels or trade associations impose a uniform price or a uniform "profit-margin" on retailers, one will find too many tobacco-shops round the streets. It should also make us very sceptical about any remedying of the evils of "imperfect competition" by compulsory rationalisation, cartellisation, or any type of interference with price-competition. For measures which intend to prevent the alleged evils of "price-cutting" not infrequently tend to aggravate the real evils which they are supposed to remedy.

4. So far we have not touched upon another abstract assumption which Professor Chamberlin has made, i.e. that each producer produces only a single "product." In reality the majority of producers produce a series of different products, if products are to be defined by the same rigid market-criteria as were applied in the earlier parts of this article. And at first sight at any rate, it does appear as if the spreading of production over a series of different products is the way in which producers can overcome the effect of those "indivisibilities" which form the *conditio sine qua non* of imperfect competition. If there is not a sufficiently great demand to produce one product on an "optimal scale," the producer may still utilise his plant fully by producing two or more products, rather than building a smaller, sub-optimal plant or leaving his existing plant under-employed. In this way, "indivisibilities" will be overcome; and consequently "excess capacity" will not make its appearance either. The effect of "competition from outside" will be to induce producers to produce a larger series of products, rather than to reduce the scale of output as a whole.

In our view this line of reasoning is not strictly accurate; for even if it is admitted that varying the number of different kinds of products produced provides one line of adjustment for the entrepreneur, this does not imply that the essential consequences of this type of situation (that increased competition will lead to an increase in costs) can thereby be avoided. Whether they will or not, will depend on the nature of the cost-function of the jointly produced products.

Commodities, of course, will only be produced jointly if it is cheaper to produce them jointly than separately. For certain commodities (such as wheat and straw) this is always the case: whatever is the amount produced of each (or rather whatever is the amount of resources engaged in producing them); irrespectively therefore whether the economies due to scale are attained or not. These are the cases of "by-products"; where more than one commodity emerges as a result of single productive process. Certain other commodities, however, may be jointly produced simply because the demand for any of them is not large enough to be produced on a scale which should enable the realisation of the economies of scale; while some of these economies can be retained by utilising a larger "plant" for the production of several commodities. For such commodities "joint production" will only be profitable as certain

outputs, and will become unprofitable as soon as the demand for each or any of them is sufficiently large to enable the "economies of scale" to be secured in case of separate production. This is the case simply because the "indivisible factors" (buildings, machinery, etc.) which are responsible for these economies, are never completely specialised; and can be used, more or less effectively, for the production of several things simultaneously.

Since, however, in most cases, "indivisible factors" are not completely unspecialised either, such a "spreading of production" is always attended with some cost; i.e. the physical productivity of a *given* quantity of resources calculated in terms of *any* of the products will always be less, the greater the number of separate commodities they are required simultaneously to produce. That this is the case for a large proportion of jointly produced commodities is shown by the fact that the development of an "industry" is always attended by "specialisation" or "disintegration," i.e. the reduction of the number of commodities produced by single firms.¹

Assuming that the cost-functions of jointly produced commodities are of this nature, how does the equilibrating process work itself out under our previous assumptions? For simplicity, we can postulate that there are a given number of firms, and initially each of them produce only one product and all are making profits (not necessarily to the same degree). Let us suppose that one of them finds it profitable to produce another commodity, highly competitive with the products of some other producers. These latter producers will now find the demand for their products reduced; and *this* may make it profitable for them to engage in the production of a second, or even a third, commodity—even if this was not profitable before. This in turn will induce other producers (possibly our "first" producer) to do the same, which in turn will lead to a further "spreading of production" by competing producers. Assuming always that producers merely take the *direct* effects of their actions into consideration (i.e. act upon an "imagined demand curve" which regards the prices and the "products" of all other producers as given²) this process will continue, so long as producers continue to make some profits;

¹ Cf. Allyn Young, "Increasing Returns and Economic Progress," *Economic Journal*, 1929.

² This implies in this case that producers ignore not only any adjustment of price or of product by other producers as a result of their own policy, but also any effect upon the demand for some of the other commodities produced by themselves.

and so long as the loss caused by a reduction in the amount of resources engaged (if the reduction in the output of one commodity were not compensated by an increase in the output of another) is greater than the loss caused by a further "spreading of output." A precise formulation of this process would require either some very cumbrous language or some rather involved mathematics; but without resorting to either, it is easy to see what conditions the final equilibrium will involve. The demand curve for each single "product," will have become very much more elastic¹ (since each producer now produces a very much smaller share of each product, or "type of product"); profits will have been wiped out and the general level of costs for each product, or type of product, will have become higher. There will not be much "excess capacity" in the sense, that given the *number* of different products produced simultaneously by each firm, an increase in the output of all of them would reduce costs per unit. Yet there will be a "technical wastage," since the physical productivity of resources will be less than what it would be if each producer produced a smaller number of products and a large proportion of the total output of each; a policy they undoubtedly would prefer, if all of them would foresee the ultimate, as distinct from the immediate, consequences of their actions.²

IV

We have seen therefore that in all cases where economies of scale are present over certain ranges of output and where market imperfection exists (in the sense that highly and yet imperfectly substitutable commodities are on sale), "increased competition" (i.e. an increase in the number of firms in a particular industrial field) might lead to a reduction of technical efficiency rather than to a reduction in price or an increase in aggregate output; while in cases where firms can vary the number of different products produced, this might come about even without an inflow of "new firms." In both

¹ It can become infinitely elastic only when the "spreading of output" involves *no* additional cost at all. In this case the "economies of scale" refer to the amount of resources used by single firms rather than those engaged in the production of certain products; and for each single product, conditions of perfect competition might be brought about even if the total number of firms is small.

² There may be another reason, apart from this type of "short-sightedness," why producers would prefer a policy of many-product production: and this is the reduction of risk, especially important in cases of "fashionable" articles, where they cannot calculate with any precision how the public will take any particular "variety."

cases this result was seen to depend on a certain "short-sightedness" of producers who act on the basis of the immediate industrial situation confronting them rather than follow out the further consequences of their own policy. The prevalence of such short-sightedness can be sufficiently accounted for, however, partly by the producers' ignorance of those further consequences and partly by the uncertainty as to the extent of far-sightedness with which their actual and potential competitions are endowed.

It is extremely difficult to deduce any general conclusions from the above analysis as to the effect of the generation of "excess capacity" upon economic welfare in general—in whatever arbitrary way this concept may be defined. If the money-value of the National Dividend is to be made its criterion (calculated on the basis of some *given* price-level), then no doubt, it could be increased, in some fields quite considerably, by compulsory "standardisation," cartel-agreements, the restriction of entry or any similar measure enabling producers to realise more fully the "economies of scale." The recognition of this fact, however, as yet far from warrants the advocacy of such measures. Apart from the ill-effects on distribution (and in a world of wage-rigidities, upon employment) which such processes of monopolisation inevitably involve, the public would be offered finally larger amounts of a smaller number of commodities; and it is impossible to tell how far people prefer quantity to diversity or vice versa.

Neither is it permissible to argue, on the other hand, that the generation of "excess capacity" is itself the result of consumers' choice; since it only comes about by creating a greater diversity of commodities: and consequently its emergence is evidence that the public, to that extent, prefer "variety" to "cheapness." This line of reasoning would only be permissible if consumers were actually confronted with the choice of having *either* a smaller range of commodities at lower prices *or* a larger range at higher prices. In fact, they never are in a position to choose between these alternatives: they are offered either the one or the other, but never both. To expect the consumers to be so "far-sighted" as to concentrate on the purchase of a few varieties merely in the hope of thereby reducing prices in the future, is an assumption which even the highest level of abstraction should avoid.

Japan's Balance of Trade

By R. S. SAYERS

I

IN two important markets—cotton manufactures and shipping services—Japan and Great Britain compete directly for the means to pay for their imports. In a period when their currencies are both unstable and world markets for their services extraordinarily limited, it is therefore natural that suspicion of currency manipulation for the sake of competitive advantage should easily be aroused. During the last five years the currencies of both countries have been depreciated heavily, in terms of gold, as a result of disequilibria in their balances of payments. Great Britain and Japan have been forced to compete strenuously for the shrunken world markets. The greater depreciation of the yen than that of the pound has led to an outcry about “unfair competition” and “undervaluation of the yen.” It is the purpose of this article to consider how far the available evidence suggests that Japan has in fact been able to extend her markets *unduly* by forcing the depreciation of her currency—or by acquiescing in its undue depreciation.

“Undervaluation” may have various meanings, according to the context in which the term is used. When the stabilisation of a currency is under consideration, interest should be concentrated on the rate of exchange which is likely in normal conditions to promote equilibrium in the balance of payments consistently with the existing price-and-income structure. But for our present purpose another meaning is appropriate. We are concerned with the existence—or otherwise—of competition, based on currency depreciation, which involves the *unnecessary* forcing of exports with resulting pressure on world prices. Then “undervaluation” describes the existence of a rate of exchange lower than that necessary to enable a country to balance its income (or “current”) account in addition to financing by its own new foreign investment any

excess of exports (or vice versa when the country is borrowing abroad). That is to say, we have to descry undervaluation by its results. In the Keynesian terminology, undervaluation exists if the Foreign Balance *less* the Foreign Lending is positive.¹ If there is an inflow of gold or an outflow of short-term funds, then there is undervaluation, and "exchange dumping" has been going on, in the ordinary sense in which that term is used. If, on the other hand, the proceeds from exports of goods and services have not been sufficient to cover imports of goods *plus* new overseas investment, then overvaluation has existed.

II

Our method therefore leads to an examination of the Japanese balance of payments. Official estimates thereof (in greater detail than the British statistics) are now available for the years 1930 to 1933 inclusive.² The essential figures are shown in the following summary table.

TABLE I
Japan's International Account
excluding Chosen and Taiwan
(millions of yen)

	1929	1930	1931	1932	1933
Imports Goods	2,216	1,546	1,236	1,431	1,890
Exports Goods	2,149	1,470	1,147	1,410	1,836
Import excess	-67	-76	-89	-21	-54
Interest and Dividends (net)		-81	-72	-89	-118
Other Services (net) including profits and shipping ...		+210	+156	+204	+191
Income Account Balance ...		+53	-5	+94	+19
Net Foreign Investment ...		-148	-233	-101	-55
Short term funds and gold (net)		+95	+238	+7	+36
Gold		+287	+388	*	*

* Not available ; probably very small.

¹ "Undervaluation" in this second sense may, but does not necessarily, coincide with undervaluation in the first sense (the "stabilisation" sense). Some countries (possibly Japan and Great Britain among them) have more to gain than others by a return to more normal conditions in world production and trade. The first sense assumes normal conditions, while the second sense assumes abnormal conditions.

² For 1930 and 1931 see the *Financial and Economic Annual of Japan*, 1933. The figures for 1932 and 1933 were kindly supplied to the writer by the Commercial Counsellor to the Japanese Embassy in London.

Some explanation of two of the items may be useful. The variation in the *Debit* item "Interest and Dividends (net)" is the net result of two independent variations. First, the continuance of new Japanese investment abroad has been gradually reducing the amounts in foreign currency needed for the service of the external debt. Second, the depreciation of the yen against the pound¹ and the dollar has raised the yen amount required to meet remaining obligations fixed in terms of those currencies.

The item "Net Foreign Investment" requires some particularisation, since its amount is so highly relevant to the conclusion of our examination. It consists entirely of movements of long-term funds.² Largely the net amount consists normally of direct investment in Japanese enterprises in her colonies and on the Asiatic mainland.³ But there is also normally an appreciable net repurchase of Japanese securities held abroad. (The operation of sinking funds is of course included here.)

In the autumn of 1931 and the early part of 1932 the repurchase of Japanese securities by Japanese individuals was abnormally large. It may be suggested that the prospect of the yen depreciating induced individuals to anticipate—and perhaps increase—their purchases of Japanese securities denominated in foreign currencies. No doubt this was in part the case, though the subsequent decline in this item cannot be taken as confirmation of such a theory, for there is another explanation. More important in attracting Japanese purchases were the extremely low prices to which Japanese bonds declined in London.⁴ London's scepticism of the immediate future in Japan created the condition for a larger volume of Japanese foreign investment, which in its turn, of course, helped to depress the yen exchange and frighten the London market yet more.

For our present purpose it is important that the chain of events should not be misunderstood. It was not the case that Japan was experiencing a very favourable balance of trade

¹ The appreciation of the yen against the pound in September, October and November 1931 probably reduced yen payments in that year.

² Movements of short-term funds would be "new foreign investments" for our purpose only if they represented a *permanent* addition to the banking system's *working balances* abroad. There is no indication of any such long-period change in the relevant years.

³ Including such areas as the Malay States, as well as Manchukuo and China.

⁴ See *Financial and Economic Annual of Japan*, 1933, p. 205.

and using the proceeds for adding to funds abroad. Had that been so the repercussions of the movement in Japan would have been very different. As it was, the higher yield offered by Japanese bonds in foreign security markets, combined with the uncertain future of the yen, increased the Japanese repurchase of Japanese securities. As the trade balance was against rather than in favour of Japan, the heavy foreign investment caused in the autumn of 1931 a very large outflow of gold, forced Japan off the gold standard, then in the early part of 1932 caused a decline in the external valuation of the yen and a contraction of banking funds abroad, leading to uncomfortably tight credit conditions in Japan throughout the period.

These developments led to the Capital Flight Prevention Law, designed to reduce the amount of Japanese foreign investment.¹ This law came into operation in July 1932. Since that time the Japanese authorities have in fact been supporting the yen exchange by a partial embargo on foreign lending. There is no reason to suppose that the figure for 1930 (148 million yen) is other than a normal figure for Japanese new foreign investment. Compared with that, the figures for 1932 and 1933 (101 and 55 respectively) are unduly low, especially when allowance is made for the lower external value of the yen. Taking the two years, 1932 and 1933, since Japan left the gold standard, there can be no doubt that the new foreign lending was abnormally low on account of the official embargo in force since July 1932.

We will now proceed to a detailed survey of the foreign trade position year by year.

III

The great earthquake of Japan combined with the traditional policy of avoiding all hindrance to rapid economic development to prevent Japan from returning to the gold standard until after the end of the post-war decade. The persistence of unsatisfactory Government finances led, however, to the advent to power of the Minseito Government in the summer of 1929, its policy being deflation and economy. At that time, and throughout the years 1925-9, Japan had been favoured by three circumstances not under her control.

¹ The law prohibits such transactions unless permission has been obtained from the Minister of Finance.

First, American prosperity had provided an exceptionally good market for her silk, which forms a very large proportion of her total visible exports. Second, the tardiness of Lancashire's adaptation to the wants of the Eastern markets had enabled Japan to expand her exports of coarse cotton goods to an extent which could not be regarded as secure. Third, a series of good harvests had enabled her to keep her food imports within relatively narrow limits. 1929 was an exceptionally favourable year, and Japan experienced a favourable balance of payments. Her gold reserve being substantial, and the foreign trade position apparently strong, the deflationist Government which was in the saddle decided to return to the gold standard, and the embargo on gold exports was removed in January 1930. No more unfortunate moment could have been chosen. Aptly it has been said: "Japan, having insulated herself against world price movements throughout the post-war decade, committed herself to following them at a moment of drastic decline."¹

The immediate effects of the collapse of American prosperity were the collapse of Japan's silk market and an astonishingly rapid contraction in the markets for her cotton manufactures. The value of her silk exports was 45 per cent. lower in 1930 than in 1929, while in cotton goods the decrease was over one-third. For Japan, now for the first time since 1914 committed to a gold standard policy, this sudden reversal of world conditions implied the necessity of a great deflation in costs. The necessary deflation in costs and incomes was in fact in large measure carried through. The collapse of the silk market meant an automatic decline in farm income—the income of the largest section of the population. Wage-rates in industry were reduced by about 10 per cent. within little more than a year.² This deflation of income automatically reduced the demand for imports, as well as helping to sustain exports. Exports were further supported by the very rapid

¹ See G. C. Allen, "The Last Decade in Japan" (*Economic History*, January 1933), on which the entire paragraph is based.

² Department of Commerce and Industry Index-Number of Wages.

			1929	1930	1931
Textile industries	...	...	101·4	92·4	83·7
All occupations	...	...	101·5	94·6	85·9

(*Financial and Economic Annual of Japan*, 1933, pp. 94-5.) The Index-Number does not correctly reflect *earnings*, which, with increasing productivity, have tended to rise relatively to wage-rates. (The connection between wage-rates and earnings is very much complicated by bonus and profit-sharing arrangements.) See Asahi, *The Secret of Japan's Trade Expansion*.

strides which were being made in increasing technical productivity, particularly in the cotton industry. The rate of improvement in the last five years has been almost incredible. Mainly by improved methods labour costs in cotton spinning, to take an extreme example, were more than halved between June 1929 and December 1932. Much of this improvement—perhaps a 30 per cent. reduction in labour costs—was made in the first twelve or fifteen months after the return to gold.¹

In spite of these efforts, the Japanese balance of payments for 1930 showed serious disequilibrium. The balance, 53 million yen, on income account fell short of the new foreign investment by nearly a hundred million yen, and gold had to be shipped in large quantities. Although deflation in Japan proceeded throughout the year, the continued fall in world prices with the deepening of the depression left Japan in as bad a position at the end of the year as at the beginning.

After this unsuccessful year of deflation, the Government sensibly relaxed the pressure. Although wage reductions and industrial “rationalisation” continued, the Government gave some relief to the agricultural majority of the population by adopting a policy of public works, by supporting the silk market and by other measures. This, while it meant some evening of the income structure, did nothing to help the balance of trade. At the same time the expense involved in these measures meant a serious deterioration in the Government’s financial position. In 1931 silk exports declined further with the deepening of American depression, while higher Indian tariffs and Chinese boycotts tended to contract cotton exports. However, with the continued reduction of labour costs in Japanese industry—mainly the fruit of technical improvement—Japan was definitely gaining ground in the summer of 1931 and it looked as though she would be able to pull round the corner without any extreme measures.

Any such hope disappeared with the departure of sterling from gold in September. The decline of gold prices, and particularly the sudden intensification of English competition in shipping and in textile markets, turned the balance of payments sharply against Japan. The previous small balance on income account gave way to a substantial deficit during the

¹ For the particular example given, and for other examples, drawn from reliable sources, see *Asahi, op. cit.*, pp. 25-46. This astonishing improvement is discussed by the British Commercial Counsellor in Tokyo in his *Report on Economic Conditions in Japan* (1933), pp. 28-9.

last quarter of 1931. Gold flowed out in large quantities. Towards the end of the year this deterioration in the trade balance and the complaints of the export industrialists led to an agitation to depreciate the yen. The flight of capital which this agitation naturally encouraged forced the end anticipated. After some political upheaval, the embargo on gold exports was restored early in December 1931. In the spring the change in the monetary situation (especially after the Capital Flight Prevention Law) made a sharp reduction in bank rate possible, and the last vestiges of deflationary policy disappeared.

1932 was undoubtedly one of the most dangerous years which the yen has ever passed. The external valuation of the currency was uncontrolled.¹ Bank rate was low and the Government, committed to support of internal markets by public works and other measures, and to a large armaments expenditure, was working on an enormous deficit. The financial purists who had retained some influence on policy from 1929 until the end of 1931 had fallen from power. An incipient inflation might easily, in such conditions, run beyond control and the yen be ranked alongside the discredited currencies of the early 'twenties.

Such a development was effectually prevented by the "wet blanket" of world depression. The very intensity of that depression prevented Japan from making it worse. While the world market for Japan's premier export was so limited the business outlook was too restricted for any inflationary boom to go far. Notwithstanding the rapid depreciation of the yen against gold (reaching approximately 60 per cent. in November 1932), the rise in general prices in Japan was hardly noticeable until the last quarter of the year.² Wages merely ceased to fall. Exports (though still restricted by Chinese boycotts) were stimulated, and towards the end of the year sales of cotton goods, to India in particular, were rapidly increasing. Imports of raw materials, in anticipation of the falling yen, were very heavy. Over the year as a whole the

¹ Apart from the protection derived from the Capital Flight Prevention Law.

² Index-Numbers of Prices in Tokyo (July 1914=100).

	<i>Wholesale Prices</i>		<i>Retail Prices</i>	
	1931	1932	1931	1932
March ...	125.9	126.0	139.3	136.4
June ...	119.8	116.4	134.0	131.7
Sept. ...	119.0	133.1	133.9	138.0
Dec. ...	120.1	146.8	134.6	146.0

trade balance was barely sufficient to cover the new foreign investment; but to produce such a result the net balance must have been much in Japan's favour during the last few months of 1932. At that time, when the yen first reached the low level around which it has since fluctuated little, the yen was definitely *undervalued*. Japan was more than paying her way and causing a downward pressure on world prices.¹

In 1933, as prices in the textile markets were adjusted to Japanese competition, the extraordinary exports were checked.² At the same time, as Japanese industry became more fully employed, wages began to rise.³ The development of internal trade proceeded, stimulated not only by the changed external situation but also by the heavy Governmental expenditure on armaments. The consequence of this internal expansion and of the more optimistic view taken of export prospects was to raise the level of imports. Despite a heavy rice harvest⁴ Japan was able, on the year as a whole, to do little more than cover her current needs, the new foreign investment again having to be financed by an inflow of short-term funds. Undervaluation in 1933 was non-existent. Japan's purchases of raw materials have done at least as much to help world prices up as the development of her cotton industry has tended to depress them.

Japan's efforts to balance her trade have, of course, changed *relative* prices, and Lancashire has suffered particularly. But this does not mean that Japan has competed unfairly, by currency manipulation. It means rather that a world which does not want Japan's silk is bound to find Japanese cotton goods cheaper than they otherwise would have been.

During the first ten months of 1934 the visible trade has shown a slight movement against Japan. As there is no reason to suppose that the invisible items have changed appreciably, it seems probable that the relatively poor harvest (which will affect the trade of the last two months) will make the complete year rather less satisfactory (from the point of

¹ There is no suggestion here that this undervaluation was *sought* by the authorities. Indeed, the effect of the partial embargo on foreign investment was to check the fall in the yen. The official attitude was made clear to all by the Minister of Finance at the end of 1932, when strict Government exchange control was threatened if bear operations did not cease (see *Economist*, January 7th and March 25th, 1933).

² See *Report of the Controller of Indian Currency* (1934), p. 12. The check was, of course, partly dependent on the protectionist action of the Indian Government.

³ *Statistics of Factory Labour*, published by the Bank of Japan. For the reasons given in Footnote 2 on p. 55, the rise is probably underestimated by the index-numbers.

⁴ It was 16 per cent. above the five-year average. (See *Economist*, March 31st, 1934.)

view of the balance of payments) than 1933. Excepting a very short period late in 1932, there has been no undervaluation of the Japanese yen, when regard is paid to Japan's position as a net exporter of long-term capital—a position from which she has never entirely withdrawn during the world slump.

IV

There is something paradoxical about this conclusion. Above,¹ it has been stated that in the summer of 1931, immediately before the depreciation of sterling, the Japanese balance of payments was not very far from equilibrium.² At that time sterling was notoriously overvalued. In 1934 it seems probable that the Japanese balance of payments was little if any nearer to equilibrium. The English balance of payments, on the other hand, is greatly improved. *Prima facie* we should expect from this that the yen had risen relatively to sterling. In fact it has fallen by about 40 per cent. in terms of sterling.

The solution of this paradox is, I think, to be found in a number of factors.

(1) There is the relative change in the internal cost and income structure in each country. In Japan, partly under the stimulus of depreciation and partly under the stimulus of heavy governmental deficits (representing relief measures and "services" expenditure), costs and incomes have risen appreciably.³ In Great Britain, on the other hand, financial policy has had rather a deflationary effect. The measures taken at the end of 1931 have not yet been completely withdrawn.

(2) There are the tariff changes in the two countries to consider. In Japan the changes have been very slight.⁴ In Great Britain, on the other hand, tariff changes have been important in helping to reduce the volume of imports. There has been in Japanese trade nothing comparable to the violent change in the British iron and steel trade.⁵

¹ p. 56.

² Meaning here by "equilibrium" the absence of either undervaluation or overvaluation in the sense in which we have used those terms here. There was not equilibrium in the sense of trade being "balanced" and internal prices and costs being in equilibrium.

³ In assessing the stimuli to inflationary conditions in 1932-3 in Japan it must not be forgotten that the Bank of Japan, by its open-market operations, was working on the *other* side. (See *Economist*, March 25th, 1933.)

⁴ They are set forth in the *Financial and Economic Annual*, 1933, pp. 49-50.

⁵ On which, see e.g. *Economist*, November 17th, 1934.

(3) The lack of diversity of Japanese exports¹ (as compared with those of Great Britain) is a serious handicap. The less diverse a country's exports, the further must she push into the world market for each in order to expand the total (or avoid contraction in a contracting world market). The terms of trade must turn against her and in favour of the country with more diversified trade. Possibly analogous conditions in the import trade reinforce this.

(4) Japan has been unfortunate in depending largely on the American market for her leading export—raw silk. In the American depression (which even now is probably much deeper than it was in the summer of 1931) the demand for Japan's silk has not expanded easily. The limited world revival which there has been has not done much to help Japan in the most vital point. But when world revival, and particularly American revival, goes farther, perhaps Japan will gain more than many other countries.

However, speculation on the future is no part of our present purpose. The object of the present inquiry is attained in the conclusion that Japan's struggle has been to escape from and to avoid *overvaluation*, and that the depreciation of her currency, against sterling as well as against gold, has been part of that struggle. There is no evidence that her currency has been depreciated with any further object—or indeed with any further result.

TABLE II
Chief Articles of Japan's Commodity Trade
(millions of yen)

				1929	1930	1931	1932
<i>Exports :</i>							
All commodities	...	...	...	2,149	1,470	1,147	1,410
of which—							
Raw Silk	...	...	...	781	417	355	382
Silk Goods	...	...	...	169	114	90	123
Cotton Goods	...	...	...	453	298	213	321
<i>Imports :</i>							
All commodities	...	...	...	2,216	1,546	1,236	1,431
of which—							
Raw Cotton	...	...	...	573	363	296	447
Wool	...	...	...	102	74	86	88

(Source : *Financial and Economic Annual of Japan*, 1933.)

¹ For the convenience of readers, the values of the leading items in Japan's commodity trade are shown in a table at the end. Statistics of quantities are unfortunately not available.

The British Exchange Equalisation Fund

By F. W. PAISH

SINCE Great Britain left the gold standard on September 21st, 1931, the main instrument by which official control has been exercised over the exchange value of sterling is the Exchange Equalisation Account. The decision to set up the Account, the reasons for that decision, and the general statement of the purposes for which the Account would be used were announced by Mr. Chamberlain in his financial statement to the House of Commons on April 19th, 1932.

The main purpose of the Account, or Fund, as it is more commonly termed, was to offset purely speculative movements in sterling exchange rates, while allowing "real" movements to have their normal effect. Subsidiary purposes were to permit the Bank of England to buy or sell gold at its old gold parity without showing in its accounts losses on purchases or profits on sales due to the depreciation of sterling below its old gold parity, and to provide a means of taking over the losses incurred by the Bank and the Treasury on the repayment of their foreign credits.

The Fund is managed by the Bank of England, and all its transactions are kept as secret as possible. The Fund's assets consist of two parts—its sterling assets, originally issued to it in the form of Treasury Bills and believed still to be kept almost exclusively in that form; and its non-sterling assets, consisting of foreign balances or of gold. If there is an increased demand for foreign exchange, the Fund can, if it sees fit, prevent sterling from depreciating by selling foreign exchange at existing prices to whatever extent is needed to satisfy the demand, and increasing its sterling assets; conversely, it can satisfy an increased demand for sterling by allowing its sterling assets to fall and its foreign assets to rise. If it chose, the Fund, so long as its reserves of sterling or of foreign exchange lasted, could peg the exchange absolutely

in terms of gold or of any given foreign currency. Sterling would then be on a *de facto* gold or foreign currency standard. In fact, however, the stated intention of the Fund is to prevent only those exchange fluctuations which are due to speculation, and not to interfere with those due to "real" causes.

The effects of changes in the sterling holdings of the Fund are similar to those due to any change in the ownership of sterling balances held by non-banking entities. Such changes do not affect the banking position directly, but may do so indirectly owing to differences in the use made of the balances by their former and present owners. If, for instance, funds are withdrawn from the country which were formerly invested in Treasury Bills, the final result of a complicated series of transactions is merely that Treasury Bills are transferred from their former owners to the Exchange Fund in exchange for a portion of the Fund's foreign assets. There will be no change in the internal position. If, however, the funds being withdrawn from the country were formerly invested in long-term securities, there will be some tendency for long-term interest rates to rise and for Treasury Bill rates to fall; while if the funds withdrawn were held as idle bank balances, the only direct effect may be a fall in Treasury Bill rates. It may be, however, that this fall in bill rates may cause the banks to reduce their holdings of Treasury Bills and thus the volume of their deposits. In point of fact, however, the time when the Fund is most likely to be losing foreign exchange and increasing its holdings of Treasury Bills is in the autumn; this is also the time when the Treasury's total issues of bills are normally at their highest. Later, in the spring, when the Fund is most likely to be increasing its holdings of foreign exchange and reducing its holdings of Treasury Bills, the Treasury is usually paying off Treasury Bills out of excess tax receipts. Thus the two seasonal movements may tend to cancel each other out, and one effect of the Exchange Fund may be to reduce seasonal fluctuations in the volume of Treasury Bills sold to the market.

If it can be assumed that this country's principal active reserve of foreign exchange and gold is kept by the Exchange Fund, a knowledge of changes in the holdings of the Fund would be of considerable value in estimating the future course of exchange rates. As has been mentioned, the transactions of the Fund are kept secret in order to give speculators as little data as possible which might tempt them to try to anticipate

future exchange movements. Nevertheless, it is possible that at least a rough idea of the position of the Fund from time to time may be obtained by the following method :

The British Government's short-term borrowings take the form of Ways and Means Advances from the Bank of England, Ways and Means Advances from Government departments, and Treasury Bills, the last being by far the most important. Treasury Bills are issued in one of two ways. Some are offered by tender each week to the public, and are bid for mainly by the banks and the other institutions which make up the money market, while some are issued at fixed rates to Government departments. The latter are commonly termed "tap" bills, or bills issued "through the tap." Bills issued by tender to the market seem to have a uniform currency of three months, while the "tap" bills are believed to have varying currencies, averaging about ten or eleven weeks. The Bank of England is believed to hold a considerable quantity of Treasury Bills, acquired mainly through the "tap," but possibly also at times by tender or purchase from the market.

No statement of the amount of bills issued through the "tap" is published, but the weekly totals of successful tenders are regularly available, as also is the total of all Treasury Bills outstanding at the end of each week. Bills are issued to successful tenderers during the course of the following week, and if a moving thirteen weeks' total is made of bills issued by tender, this total represents the value of bills originally issued to the market and still outstanding at the end of the week following the last tender date. If this total is deducted from the total of all outstanding bills at the end of the same week, the difference must represent the outstanding total of bills originally issued otherwise than by tender, i.e. through the "tap," though this is not necessarily identical with the total of bills now held by the Bank of England and Government departments, who may possibly have bought or sold bills on the market.

When the Exchange Equalisation Fund was formed, it was provided with sterling resources in the shape of Treasury Bills, which it naturally had to begin to realise as soon as it wanted to acquire foreign exchange, while it is believed that as soon as it realises foreign exchange it reinvests in Treasury Bills the sterling balances so acquired. On the assumption that any part of its total assets not held in Treasury Bills is held in foreign exchange or gold, changes in its foreign exchange

holdings could at once be determined by a knowledge of changes in its Treasury Bill holdings.

This knowledge is, of course, not directly available, but on certain assumptions an estimate can be made by calculating the total amount issued through the "tap," as described above, and deducting the amount normally held by other Government departments, etc., prior to the inauguration of the Fund. On the admittedly unproven assumption that these departments have continued to hold a more or less constant amount of bills, the amount of bills issued to the Fund can be roughly determined. This does not necessarily mean the same thing as the amount of bills held by the Fund at any given moment, for since their issue it could have bought or sold bills on the market. When, however, these fell due to be renewed, they would affect the amounts issued by tender, so that the time lag would not exceed three months, and persistent changes would be revealed. If, on the other hand, the Fund obtained the cash it needed, not by selling bills on the market, but by refraining from renewing bills falling due, and reinvested surplus sterling balances, not by buying in the market, but by taking up additional "tap" bills direct, then the reactions would be much more immediate, and the total of outstanding bills originally issued to the Fund would coincide with its present holdings. The latter method seems to be that which is in fact generally used.

Despite the number and doubtfulness of the assumptions made, it has seemed worth while to make by this method an attempt to trace the movements of the Fund, and in fact the results agree so closely with the guesses about the Fund's transactions made at the time, and usually accord so reasonably with the foreign exchange movements, that it seems likely that the assumptions are roughly justified, at least so far as the past is concerned. The movements indicated are also so large relatively to those which occurred in the "tap" bill figures before the inauguration of the Fund, or rather before the Treasury began to deal in foreign exchange directly after Britain left the gold standard, that it is difficult to avoid the conclusion that they are substantially due to Exchange Fund changes.

By assuming that every weekly fall in the "tap" bill total represents a purchase of French francs at the average exchange rate of the week, and every rise a sale of French francs, there can be made a week-to-week estimate of the franc value of

the current gold and foreign exchange holdings of the Fund. The question has been rendered more complicated by the fact that the Fund has at times replenished its sterling assets by reselling gold to the Bank of England, receiving, however, only its par equivalent in depreciated sterling. It is understood that when and if the Bank resells this gold, it will sell it to the Fund at the same sterling price as it paid for it. Thus the Fund owns a contingent share in the gold it has sold to the Bank—a share of which the gold value alters from week to week in accordance with changes in the gold value of sterling.

In the appended chart there are, therefore, three series. Of these, the lowest curve (the solid line) shows the estimated holdings of the Fund in actual gold and foreign exchange under its own control measured in milliards of French francs ; the curve above it (the broken line) shows the Fund's total non-sterling assets, including its share of the gold resold by it to the Bank of England ; the upper curve (the broken and dotted line) shows the non-sterling assets in hand plus the value of the gold resold to the Bank, thus showing the total changes in the gold and foreign exchange holdings of the Fund and the Bank together. In addition, a further curve, at the top of the page, shows changes in the sterling-franc exchange rate, measured in francs per £.

The assets with which the Fund started business at the end of June 1932 consisted of £150 million of sterling Treasury Bills, plus the £33 million left over from the old dollar exchange fund, less the losses incurred by the Bank and the Treasury in repaying the £130 million of credits raised abroad in the months before Britain left the gold standard. The extent of these losses cannot be accurately computed, but they cannot have amounted to much less than £30 million and possibly to more. It has therefore been assumed, for the sake of convenience, that they were about equal to the amount of the old dollar fund, and that the Exchange Equalisation Fund started business at the end of June 1932 with its £150 million in Treasury Bills only.

It seems at once to have taken over, largely from the Bank of England, about 6 milliard francs in non-sterling assets, plus a contingent share, worth about 500 million francs, in the £15 million of gold which the Bank of England bought with Treasury assistance during the second quarter of the year. For the next six weeks nothing much seems to have happened, except that the Bank bought a further £3 million of gold with

the help of the Fund. About the middle of August, however, the Fund appears to have commenced heavy sales of exchange in order to maintain the value of sterling, and, despite further apparent purchases of foreign exchange from the Bank of England, by the middle of September the whole of the free reserves of the Fund appear to have been exhausted. This is confirmed by a later statement by Dr. Sprague, who is reported to have said that the Fund's foreign exchange reserves were entirely exhausted in the autumn of 1932. With its reserves exhausted, the Fund could do no more to support sterling, and the franc rate fell heavily from 88·2 at the end of September to 81·8 at the beginning of December. So far from checking the fall, the Fund appears to have accelerated it by replenishing to some extent its exhausted foreign exchange reserves, presumably with a view to the war debt payment to America, which it was becoming increasingly clear would have to be made in December. When, however, this payment was in fact made, it was taken out of the gold reserves of the Bank of England. The gold purchased earlier with the help of the Fund was resold, and the upper lines temporarily disappear from the chart. The fall in the solid line at this point may be partly fictitious, being probably due in part to an expansion in the Bank of England's holdings of Treasury Bills in replacement of the gold sold.

As soon as the war debt payment had been made, the exchange tide turned, partly, perhaps, in consequence of the relaxation of seasonal pressure, and partly in consequence of the inflow of refugee money from abroad, and especially from the United States. Despite heavy sales of sterling by the Fund, the franc rate rose from under 82 at the beginning of December to 88 at the beginning of March. Meanwhile the depletion of the Fund's sterling resources had proceeded so rapidly that it was obliged to replenish them by large resales of gold to the Bank of England, an operation which incidentally helped the Government's cheap money policy. Further, in April the Fund's sterling resources were again augmented by the issue to it of a further £200 million of Treasury Bills. Including the amounts resold to the Bank, it seems probable that the Fund's purchases of gold and foreign exchange during the first half of 1933 were something like 12 milliard francs, or nearly £150 million at the then rates of exchange.

In the middle of July there was a reversal in the tendency of the exchanges. Sterling weakened sharply, and it appears

to have needed the sale by the Fund of over 3 milliard francs to prevent the franc rate from going below 79. The weakness of sterling was, however, short-lived, for the political situation in France gave rise to a flight from the franc, and the Fund seems to have had to purchase some 7 milliard or 8 milliard francs to prevent the rate going above 85. Since sterling resources were now ample, the Fund was able to do this without having to resell gold to the Bank of England, and by the end of December the amount of gold and foreign exchange held by the Fund itself appears to have risen to about $10\frac{1}{2}$ milliard francs, a gain of at least 7 milliard francs over the year, in addition to the 9 milliard francs' worth of gold resold to the Bank of England. Total net purchases of gold and foreign exchange during 1933 are therefore estimated at about 16 milliard francs, or nearly £200 million. The franc rate of exchange at the end of the year was very similar to what it had been at the beginning ; what it would have been without the sales of sterling rendered possible by the existence of the Fund can only be conjectured, but it must surely have been a great deal higher.

The story of 1934 has been very different. The Fund seems to have made no attempt to check the fall in sterling, from over 84 to about 78, which accompanied the depreciation and *de facto* stabilisation of the dollar in January and February. In April and May, however, when sterling again began to weaken, the Fund seems to have made appreciable sales in preventing it going much below 77. Sterling then remained very steady at about $76\frac{1}{2}$ for nearly three months, though during the latter part of this time the Fund may have been buying moderate amounts of sterling. In the middle of August, however, renewed weakness set in, which forced the rate down to 74 in mid-October, despite active support by the Fund. Political uncertainties in France brought about a temporary recovery to over 75, but the improvement was short-lived, and the end of the year sees sterling still rather weak at about $74\frac{3}{4}$. Thus, despite sales by the Fund of foreign exchange, estimated at over 7 milliard francs, sterling has declined since April from over 78 to under 75. If the deductions from the bill figures are even roughly correct, it would appear that the free foreign exchange reserves of the Fund are now seriously depleted, and that should the weakness in sterling continue or recur, the Fund will not be able to do much to maintain the rate, unless, indeed, it can draw upon the Bank of England's

gold reserves. A considerable part of the additions made to these in 1933 are now needed to cover the increase in the note circulation, and it would not need very large withdrawals to bring the note reserve of the Banking Department down to a less comfortable level. In view of the emphasis which the Government has laid upon its "cheap money policy," it seems likely that, if the choice lay between the further depreciation of sterling and action which might point, even remotely, at restriction of credit, they would choose the former.

There remains the question of whether the weaker tendency of sterling is likely to continue. It seems possible that during the next few months the relaxation of seasonal pressure may permit the Fund to effect some replenishment of its foreign exchange reserves at current rates. But whether the weakness is likely to recur later depends partly on how far the weakness during the past year has been due to an adverse balance of normal payments and how far to the withdrawal of foreign refugee funds (or their conversion into gold, which would have the same effect). During 1934, imports of gold into Great Britain exceeded exports by more than £130 million. It is not believed that these huge amounts are held here on behalf of British residents to any great extent, for these may not safely hold amounts in excess of £10,000 each. Nor, as we have seen, are they due to acquisitions by the Exchange Fund or the Bank of England. It is, therefore, believed that they are held mainly on account of foreigners, many of whom may have used sterling balances for their purchase. In addition, it is likely that substantial balances have been withdrawn from the country through the exchanges. If these withdrawals are sufficient to account, or more than account, for the weakness of sterling in 1934, it is at least possible that the outflow of funds in 1935 will be on a smaller scale, and that the course of sterling will be firmer. On the other hand, during 1934 British imports rose by more than £57 million, while total exports rose by only £30 million. It does not appear that this movement has been compensated in the so-called invisible items, and the balance of payments is, therefore, becoming less favourable. Whether this tendency will continue in 1935 would appear to depend, given a maintenance of low interest rates here, mainly on developments abroad, and especially in the United States, where during 1934 there was a large rise of exports and a fall in imports. A substantial expansion in United States imports during 1935 would render a further

depreciation of the pound much less likely. Nevertheless, the present depleted state of the Exchange Fund would *prima facie* constitute a warning that the course of sterling during the coming year is not unlikely to be downwards.

In conclusion, I may mention that the methods used to calculate the amount of the Exchange Fund involve a calculation of its profits. I estimate these at present at about 1,700 million francs or nearly £23 million at current rates on the actual exchange transactions of the Fund, plus a further contingent profit of nearly 900 million francs, or nearly £12 million, on the gold sold to the Bank of England. Thus the Fund has now probably made just about sufficient profit to cover the losses made on the foreign credits raised in 1931.

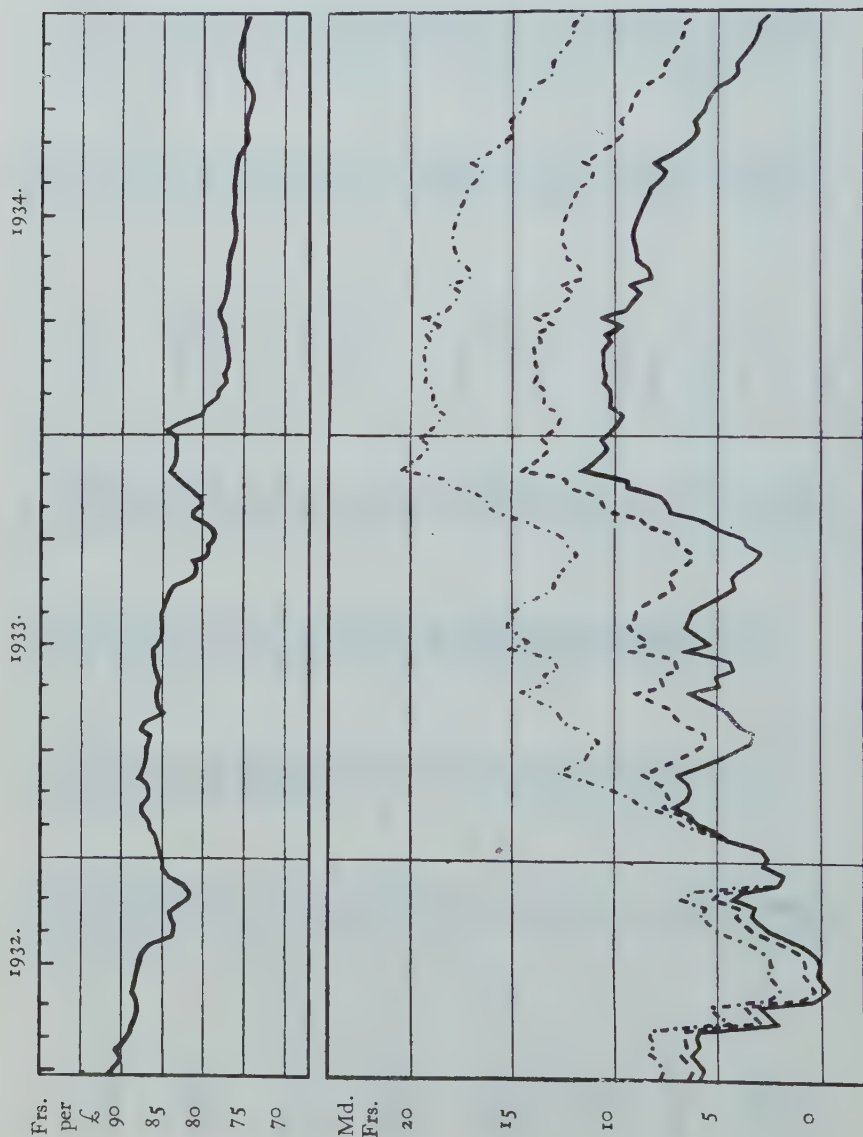
[For tables and chart see over]

EXCHANGE EQUALISATION FUND. TABLES.

Date	Non-sterling assets in actual poss- ession of Fund	Total non- sterling assets of Fund	Total including gold sold to Bank	Franc- sterling Exchange Rate	Date	Non-sterling assets in actual poss- ession of Fund	Total non- sterling assets of Fund	Total including gold sold to Bank	Franc- sterling Exchange Rate
	Md. frs.	Md. frs.	Md. frs.	Frs. to £		Md. frs.	Md. frs.	Md. frs.	Frs. to £
1932					1933				
July ...	5.77	6.27	7.67	90.8	October	...	3.83	12.57	78.7
	5.95	6.46	7.86	90.5			5.10	13.84	79.4
	6.37	6.91	8.40	90.8			5.67	14.40	81.3
August	5.97	6.56	8.14	90.1	November	...	7.38	16.11	81.4
	6.03	6.67	8.34	89.3			7.46	16.19	80.1
	5.94	6.58	8.25	88.7			7.79	16.52	80.9
	2.22	2.86	4.52	88.6			9.35	18.08	82.2
September	2.84	3.49	5.16	88.3	December	...	9.39	18.25	83.5
	3.10	3.75	5.42	88.5			11.75	20.61	84.3
	.34	.99	2.66	89.0			11.17	20.02	83.6
	— .28	.37	2.04	88.8			10.66	19.52	83.5
	— .01	.64	2.31	88.5			10.33	19.19	83.5
	.34	.99	2.66	88.2			10.66	19.52	83.4
October	.16	.82	2.49	88.1	1934				
	.25	.92	2.59	87.8	January	...	10.16	19.01	84.7
	.86	1.54	3.21	86.7			9.91	18.76	83.2
November	1.61	2.35	4.02	84.0			9.55	18.41	80.4
	2.62	3.36	5.03	83.9			10.31	19.17	79.9
	3.12	3.85	5.52	84.2			10.23	19.09	78.7
	3.46	4.19	5.86	84.4	February	...	10.23	19.09	78.4
	3.21	3.96	5.63	83.0			10.62	19.47	77.4
December	4.52	5.30	6.97	81.8			10.46	19.32	77.8
	3.78	4.55	6.22	82.4	March ...	...	10.54	19.39	77.2
	2.07			84.2			10.54	19.39	77.1
	1.90			85.3			10.62	19.47	77.3
	2.83			85.1			10.23	19.08	77.4
1933							10.54	19.39	77.4
January	2.66			85.5			9.63	18.48	77.6

[illegible]

BRITISH EXCHANGE EQUALISATION FUND.



UPPER CHART.

Franc-sterling Exchange in francs per £.

LOWER CHART.

Solid Line.—Estimated non-sterling assets in actual possession of Fund.

Broken Line.—Estimated total non-sterling assets of Fund, including contingent interest in gold sold to Bank of England.

Broken and Dotted Line.—Estimated non-sterling assets in actual possession of Fund, plus gold re-sold to Bank of England.

APPENDIX

UNFORTUNATELY it is impossible, for reasons of space, to give the full tables on which those printed on pp. 70-71 are based; for the information of any readers who may wish to check the accuracy of the figures printed here, or who may wish to continue them for their own use, I therefore append the following more detailed explanation of the method of compilation used. The figures in brackets refer to the different columns in the full tables.

Take (col. 1) the weekly totals of successful Treasury Bill tenders (published in the Press each Saturday) and construct therefrom a moving thirteen weeks' total (col. 2). Then take (col. 3) the weekly totals of Treasury Bills outstanding (contained in the Treasury Statement issued each Tuesday and published in the Press on Wednesday). Subtract the thirteen weeks' moving total of tender bills (col. 2) from the Treasury Bill total (col. 3) of the week following that of the latest tender figure used. This gives (col. 4) the total outstanding of bills issued through the "tap." From this total deduct £145 million, the average "tap" bill figure in 1930-1, thus getting an estimate (col. 5) of the bills held by the Exchange Equalisation Fund, which are assumed to constitute the whole of the Fund's sterling assets. Deduct this from the total of bills originally issued to the Fund (£150 million in June 1932 and a further £200 million in May 1933) thus getting (col. 6) an estimate of the amount of sterling spent in acquiring non-sterling assets. Then take (col. 7) the weekly increase or decrease in this last figure, and convert it into francs at the average sterling-franc exchange rate for the week (col. 8). The result (col. 9) gives the estimated weekly increase or decrease in the franc value of the non-sterling assets. Cumulate this (col. 10), thus obtaining the apparent franc value of the non-sterling assets of the Fund, i.e. the total which the Fund would have held if the gold it sold to the Bank of England had been worth only the sterling received for it. As in fact it sold gold to the par value of the depreciated sterling received in payment, the difference between the par and depreciated values of sterling must be allowed for. Take, therefore (from the Bank of England statements), the par sterling value of the gold acquired by the Bank from January 1933 to date (col. 11) and multiply it by the par franc value of sterling (124·21), thus obtaining the full franc value of the gold sold by the Fund to the Bank (col. 12). Then take and cumulate the franc values at the various dates of sale of the depreciated sterling paid by the Bank for it (col. 13). Deduct col. 13 from col. 12, and the difference is the franc value of the gold over-delivered by the Fund (col. 14). If col. 14 is now deducted from the apparent franc value of the non-sterling assets of the Fund (col. 10), the remainder is the estimated franc value of the non-sterling assets actually in the possession of the Fund (col. 15, and col. 1 of the table on pp. 70-71).

It is now necessary to find the value of the contingent share owned by the Fund in the gold sold to the Bank. To do this, take the sterling

received from the Bank to date in payment for the gold (col. 11) and convert it into francs at the present rate of exchange (col. 8), thus getting the present franc value of the sterling received from the Bank (col. 16). Deduct this from the franc value of the gold sold (col. 12), and the difference (col. 17) is the franc value of the Fund's contingent share of the gold sold to the Bank. Add this to the franc value of the non-sterling assets in the Fund's actual possession (col. 15) and the result gives the total non-sterling assets of the Fund (col. 18, and col. 2 on pp. 70-71). The total, including all the gold acquired by the Bank with the help of the Fund since January 1933 (col. 19, and col. 3 on pp. 70-71) is obtained by adding the franc value of the gold (col. 12) to the non-sterling assets in the Fund's actual possession (col. 15).

To estimate the profits made by the Fund, take the sterling cost of the non-sterling assets (col. 6), and convert it into francs at the present rate of exchange (col. 8). This gives the franc equivalent at present rates of the sterling cost of the non-sterling assets (col. 20). Deduct this from the franc value of the total non-sterling assets of the Fund (col. 18) and the difference is the total profit made by the Fund to date (col. 21). Of this, the difference between the franc value of the sterling received for the gold at the dates of sale (col. 13) and its franc value at present rates (col. 16) gives the Fund's contingent profit on the gold sold to and held by the Bank (col. 22). The difference between this and the total profit (col. 21) gives the profit made by the Fund on its other transactions (col. 23). Of this last total, about 150 million francs represents the profit made by the Fund on its gold dealings with the Bank in 1932.

Monetary Equilibrium and the Price Level in a Progressive Economy: A Comment

By KARL BODE and GOTTFRIED HABERLER

I

MR. HARROD has recently¹ put forward the thesis that monetary equilibrium (as defined by the equality between savings and investment) in a progressive economy is quite consistent with the maintenance of a stable price level through the creation and infusion of additional credit. The main basis for his argument—which stands in contradiction to the contentions of many authors—consists in the assertion that in a progressive economy where the effective quantity of money is held constant, some part of savings will be absorbed by an increase in average monetary holdings, and will thus not become available for investment; to put it shortly, in a progressive economy where no additional credit is created there will be an excess of savings over investment equal to the increase in average real cash balances held.

Before embarking on our main subject we wish to make the following preliminary remarks:

1. The purpose of this paper is not only to comment on and give a criticism of the *explicit* written statements of Mr. Harrod (or of Mr. Kaldor, as the case may be) but rather to find out what are the assumptions tacitly *implied* in his arguments and to indicate their *ultimate consequences*. This applies particularly as regards our treatment of the concept of saving.

2. By a *progressive economy* we mean here one in which the increase in the social product is due to a rise in the return per unit of factor employed, i.e. to technical inventions, and not to any increase in the supply of

¹ Cf. Harrod, "The Expansion of Credit in an Advancing Community" (ECONOMICA, August 1934); Robertson, "Mr. Harrod and the Expansion of Credit," and Harrod, "Rejoinder to Mr. Robertson" (both in ECONOMICA, November 1934); Harrod, Letter to the *Economist* (Book Supplement, October 6th, 1934), and Letters to the *Economist* from Kaldor, Stafford, Barger, Haberler and Harrod (Book Supplement, November 10th, 1934). Besides these published articles and letters, further discussion has taken place in private correspondence on this question with Messrs. Harrod, Robertson, Kaldor, Hayek and Stonier. For various useful suggestions and for the translation, the authors are very much obliged to Miss P. Joseph.

factors themselves (excluding also, therefore, an increase in the roundaboutness of production due to new voluntary or forced savings). These assumptions bring out more clearly Mr. Harrod's own line of thought, whereas the cases which we are excluding give rise to special problems of their own which need not concern us here. (In this connection cf. Robertson's note in *ECONOMICA*, November 1934.)

3. Of course we do not deny that there may occur cases where an increase in the amount of money is consistent with or even necessary for a policy of neutral money; nor do we make any general claim that such a policy is the ideal one.

II

Now, for the sake of argument, let us neglect for the moment the fact that Mr. Harrod is assuming a constant velocity of circulation (constant k or v in the Cambridge equation). On the assumption of a rise in k his argument would be perfectly clear. Where he speaks of additional monetary holdings, we should then take this to mean an increase in these holdings in nominal, money terms (and not simply the rise in the real value of constant money balances which occurs automatically *pari passu* with the fall in prices and the rise in the value of money in general). According to usual terminology this would merely be a case of *hoarding*, which necessarily involves an actual absorption of savings. Of course in this case the advisability of increasing the supply of money is perfectly clear, and is also fully recognised by Hayek and other representatives of the neutral money school.¹ The only innovation in this case would be the statement that hoarding is an inevitable and regular accompaniment of a progressive economy.

In fact Mr. Kaldor²—by his introduction of the element of anticipation—interprets Mr. Harrod very much along these lines. According to Mr. Kaldor—or rather according to his implicit reasoning—what Mr. Harrod really meant was this: (1) In a progressive economy—i.e. where real income is increasing—people expect an increase in their money incomes; (2) Since they desire to maintain their k —i.e. the ratio of average cash balances to income—constant, they therefore increase their average monetary holdings; and (3) If the banks then disappoint them by failing to provide the implicitly anticipated increase in the supply of credit, then, looked at *ex post*, these people will have hoarded, although *ex ante* they had no such intentions.

In his second letter to the *Economist* Mr. Harrod expresses himself in complete agreement with this interpretation. If we could take him strictly at his word, then the only questions remaining open for discussion would be: (1) In a progressive economy, do people really anticipate a rise in their money incomes corresponding to the increase in real incomes?

¹ Cf. Koopmans, "Das Problem des neutralen Geldes," in *Beiträge zur Geldtheorie*, edited by F. A. von Hayek, Vienna, 1932.

² In his letter to the *Economist* of November 10th, 1934.

and (2) Does such an *expectation* actually lead to an increase in k ? The first question we shall not discuss here. As regards the second, we may state that it seems neither certain nor even probable that k will rise as a result of an anticipated rise in money incomes. Why should I keep back this month part of my income which I should otherwise have spent in the usual manner, simply because I expect a rise in my income next month? Without going deeply into the differences in behaviour with respect to *Betriebsfond* ("circulating cash") and *Kassenreserve* ("cash reserve") respectively,¹ we may answer the question in this way:

With regard to the *Betriebsfond*, as Neisser has shown,² the situation is as follows: The average holdings of cash increase *automatically* as the additional income flows in; it is not that they are deliberately accumulated in *anticipation* of a future rise in income. As regards the *Kassenreserve* the connection is not so clear; in any case there seems to be no necessity here for k to rise. If I expect an increase in my income in the future, it would appear reasonable to assume that I should actually spend *more* freely from resources which I have available at present. Moreover, it is probable that, particularly in the sphere of income with which we are dealing here, the size of the *Kassenreserve* is of relatively slight importance as compared with that of the *Betriebsfond*.³

With regard to Mr. Harrod himself—if he really were in complete agreement with Mr. Kaldor—his misfortune would be a double one; not only would he have clutched at a reed which turned out to be a broken one, but at the same time he would have been forced in so doing to abandon his former foothold.

In plain words, Mr. Harrod is deceiving himself if he thinks that he really said what is *implied* in Mr. Kaldor's interpretation of him.⁴ For

¹ This distinction which is an important contribution to the solution of these problems is to be found in H. Neisser, "Der Kreislauf des Geldes," in the *Weltwirtschaftliches Archiv*, 1931. See also the extremely instructive and illuminating study of H. S. Ellis, *German Monetary Theory, 1905-32*, Harvard University Press, 1934, p. 169.

² Cf. Ellis, p. 170.

³ We do not, of course, deny that, *in other connections*, the future price and income expectations are of very great importance. If entrepreneurs expect constant prices (which is implied by increasing money incomes) and are then disappointed in this expectation, troubles will undoubtedly follow, and in certain cases a deflationary process may set in. But this is a very difficult question, which we cannot go into here. We may only point out that the relationships are certainly more complicated than might appear from Mr. Kaldor's statements. His principle of banking policy might perhaps be put as follows: act as the public expect you to act. But it is not at all certain that, where people expect prices to remain constant, a banking policy directed towards the stabilisation of prices will in fact avoid all disturbances.

⁴ Mr. Harrod now informs us that he was interpreting Mr. Kaldor in a different way. He denies (a) that Mr. Kaldor's theory implies a change in " k "; (b) that the term "price expectation" refers to future prices and (c) that the expectations refer not only to constant prices but also to larger money incomes.

Now, as Mr. Kaldor himself has told us, and as is indeed perfectly obvious, this is certainly a misunderstanding of what Mr. Kaldor wanted to say. The expectations are taken to refer not only to prices but also to income or capital assets. This theory of price expectations which figures so prominently in Mr. Kaldor's exposition, is largely

this interpretation involves a fall in the velocity of circulation; and Mr. Harrod does not appear at all prepared to introduce into his argument this assumption, which, as we may point out once more, would at once eliminate any grounds for dispute, so far as *theoretical* questions are concerned. On the contrary, he says *expressis verbis* in his first article in *ECONOMICA* (August 1934, p. 296): "On the *assumption of constant velocity*, the community will require to add to its monetary holdings, at the same rate that income is increasing," and on p. 298, ". . . *if the velocity of circulation was rising* at the same rate as national income, this cross entry would *not* be required." (*Italics inserted.*)

And in fact his whole argument actually derives its *existence* from this assumption; otherwise there would be no problem.

III

This simple way of interpreting his thesis being forbidden by Mr. Harrod himself, we now have to face what seems to be the root of the trouble, i.e. the concept of saving. For in our opinion, the whole argument of Mr. Harrod throughout all the publications mentioned above, rests alternatively on his tacit or expressed departure from the "usual" concept of savings.¹ If we apply to this theory the "usual" concept of saving as equal to the difference between money income and money expenditures on actual consumption—then the "side tracking of savings" would imply an act of hoarding; this Mr. Harrod explicitly excludes.

Nor can Mr. Harrod have been using the concept of saving employed by Mr. Keynes; for since, according to Mr. Keynes, an excess of savings or of investments is by definition equal to losses or profits respectively,²

based on the theory of anticipations of Professors Myrdal and E. Lindahl; from which we can deduce that expectations are here to be taken as referring not to present but to future prices.

As regards *k*, we can only stress once more the fact, that even though there may *ex ante* be a desire to keep *k* constant, this does not prevent *k* from being increased *ex post*—if no new supplies of money have been provided. We admit, however, that Mr. Harrod's interpretation of Mr. Kaldor does not bring him into conflict with his own original position. We have therefore to modify our picture: it was not the reed provided by Mr. Kaldor at which he clutched, but another one which he had mistaken for it. The new one seems to us not much better than Mr. Kaldor's, but it has the advantage that Mr. Harrod can reach it without abandoning his original position.

¹ In his letter to the *Economist*, Mr. Harrod explicitly introduces his "curious" definition of saving, but in private correspondence he maintains that the argument of Part II of his first *ECONOMICA* article would hold equally well for the ordinary as for his own peculiar definition of saving. This is hard to believe for two reasons: in the first place as already mentioned, the ordinary concept of saving implies an act of hoarding; and in the second place Mr. Harrod believes that with this concept *S* must always, *ex definitione*, be equal to *I*, in which case there seems to be no point in introducing a special argument to establish this equality for the particular circumstances in question.

² We cannot here attempt a criticism of Mr. Keynes' concept of saving itself. We may, however, remark in passing that we share the views of Messrs. Hansen, Hawtrey,

Mr. Harrod should be able to support his thesis that a constant effective quantity of money in a progressive economy leads to an excess of savings, by the corroborative proof that these are accompanied by exactly equal and simultaneous losses. Actually he does not attempt to provide such a proof; nor do we think that any such proof could be adduced under his assumptions, since from his own argument we can see absolutely no reason why entrepreneurs should make any losses at all, not to mention losses exactly equal in extent to the excess savings.

What then is the *definition* of the concept of savings actually employed by Mr. Harrod, and what are its characteristics? In his Rejoinder to Mr. Robertson, Mr. Harrod writes: "A certain part of public savings are devoted to the holding of extra value in the form of money. Define the part so absorbed in any period as the increment in the value of the community's monetary holding in that period. Total new savings are then the public funds put out to loan plus this value" (p. 477).¹

Two important characteristics distinguish Mr. Harrod's concept of saving from that usually employed:

1. Mr. Harrod defines saving in terms of *real value*, whereas the usual concept is a *monetary* one. This in itself is a relevant distinction, but not so important as the following one.

2. Mr. Harrod defines in an unusual way the *concept of income*—a concept which, besides forming the immediate basis for the ordinary definition of savings, is also of primary importance for his own definition of savings. For he treats the increase in *wealth* (capital appreciation) which follows naturally from the increase in the value of money as part of income.

Two points may be noticed in this connection:

(a) This concept of saving is *inconsistent* both with the equation of exchange and also with the equation $k = \frac{I}{V} = \frac{M}{E}$. In the latter the

term E represents only the *actual money income received*, it does not include also the *imputed* but not actually paid appreciation of capital wealth. As a result Mr. Harrod's concept of income, and consequently his concept of Hayek and Robertson that this concept is not a very satisfactory one, and particularly on account of the equality *per definitionem* which it sets between excess-savings and losses on the one hand, and excess-investment and profits on the other. A complicated differential expression is substituted for the simple terms "losses" and "profits" which Mr. Keynes himself has clearly and usefully defined. Moreover, it is easy to show that Mr. Keynes does not always remain faithful to his own definitions. He is inconsistent whenever he speaks of differences between S and I as *giving rise* to losses or profits. This is incorrect, because they *are* losses or profits *by definition*. Mr. Keynes is here confusing an analytic with a synthetic statement, a conceptual connection *by definition* with a *causal* connection between real facts.

¹ Incidentally, we may perhaps suggest here that in our opinion Mr. Harrod does not pay sufficient attention to the necessity of precise definition and consistent terminology. Does he realise that in the last sentence as it stands he is employing *heterogeneous* concepts, by defining a *real value* (total new savings) as the sum of a *money* amount ("public funds") plus another *real value* ("this value")? It would surely have been better if he had inserted the words "the value of" before "public funds."

saving also, are not consistent with the remaining concepts of monetary theory, which are defined so as to fit into the equations for the value of money.

(b) If Mr. Harrod is going to employ this *imputed value* or accounting concept of income at all, it is difficult to see why he should apply it only to capital appreciation arising out of an increase in the value of *monetary* holdings, and why he should not consider any other forms of capital appreciation equally as income. This appears to be a slight inconsistency. But having adopted this concept it was particularly important for him to redefine in consequence the concept of *investment*, since otherwise there is obviously no point in comparing S with I. For example, there is no sense in comparing with the demand for new investment goods (I according to the terminology of Mr. Keynes) the appreciation in the value of existing capital (defined by Mr. Harrod as part of S).¹

Apart from such criticism on points of detail, we may summarise the results of our analysis up to this point as follows:

1. Mr. Harrod has not succeeded in proving that, with his own concept of saving and under the various other material conditions which he assumes, S can only be equal to I if P is kept constant. His argument on this question must inevitably lack a solid foundation so long as he fails to define I in conformity with S (and E). Only when this has been accomplished will it be possible to attach any definite and unambiguous meaning to his statements, and thereafter to set about establishing a proof of this argument.

2. But even if Mr. Harrod had succeeded in establishing this proof, that *in itself* would in no way detract from the validity of the theory of neutral money. For in this theory S and I are understood to mean something quite different from what Mr. Harrod means by them. Representatives of the neutral-money school employ these concepts in their "usual" meaning, and therefore none of their statements can be regarded as directly contradicting any of those of Mr. Harrod, who uses the concepts in a distinctly "unusual" meaning.

It still remains therefore for Mr. Harrod both to prove his own thesis, and also to disprove his "antithesis"; which latter, however, is strictly speaking concerned with a different problem altogether.

IV •

Mr. Harrod has adopted this unusual definition of E and S, because he believes that with the "usual" concept of savings the total savings and total investment of an economy must always by definition be equal—and

¹ Unfortunately, it is not possible in this note to say anything positive with regard to the difficult theory of capital and income (in which one of the most fundamental questions to be decided is what is really meant by the process of "keeping capital intact"). We should merely like to suggest here, however, that a satisfactory treatment and solution of this problem would probably help to remove many of the difficulties arising out of the concepts of saving and investment.

that therefore any rate of interest is an equilibrium one, so that the theory of neutral money becomes meaningless. This is a proposition which one hears repeatedly from certain Cambridge economists; it is however incorrect. In order to make a difference between S and I possible we submit that we do not require an "unusual" concept of saving, but merely a *correct* understanding of the *usual* concept.

Even Mr. Keynes has confined the objection of inevitable identity with investment to the particular concept of saving which he calls "surplus," and defines as "the excess of the income during a period over expenditure on consumption during that period."¹ And he expressly excludes from this criticism Mr. Robertson's concept of saving: "A man is said to be saving if he spends on consumption less than his disposable income."²

Now the concept of savings used by Mr. Robertson seems to us much more in harmony with current usage than this "surplus" concept. The difference between the two concepts lies in the fact that while Mr. Robertson subtracts the expenditure on consumption goods in a particular period from the income earned in the *previous* period, the surplus concept deals with the difference between expenditure on consumption goods and income in the *same* period. And surely the current concept of savings is concerned with *deliberate* acts of choice rather than with a mere more or less automatic process of addition or subtraction. So that in excluding Mr. Robertson's concept of saving from the objection of inevitable identity with investment Mr. Keynes is at the same time releasing from this objection the "ordinary" concept of saving.

This does not of course mean that Mr. Keynes actually advocates the "usual" concept, against which he has raised other objections. With regard to the "unusual" concept employed in his *Treatise* we have already indicated (on p. 78 above) wherein we consider it defective. As far as the general terminological question is concerned, we may merely add in conclusion that this must always be a pure question of expediency, and that in this connection the relevant points to be considered involve the following three distinctions:

1. An individual *versus* a collective concept.
2. A real *versus* a nominal concept.
3. A concept relating to a point of time, a period of time or to several periods of time.

We believe that although not contributing to the essential parts of the problem, a table of well-defined and homogeneous concepts carefully drawn up along these lines could contribute much towards the clarifying of discussion and presentation of monetary theory.

¹ Keynes, "Mr. Robertson on Saving and Hoarding," *Economic Journal*, December 1933, p. 699.

² D. H. Robertson, "Saving and Hoarding," *Economic Journal*, September 1933, p. 399.

Rejoinder to Drs. Haberler and Bode

By R. F. HARROD

THE foregoing article is less critical of me than might be judged by the number of times my name is mentioned. The first section "for the sake of argument neglects for the moment" that I assume a constant velocity of circulation. In none of the writings referred to did I develop arguments implying a changing velocity, although I did not exclude that possibility. Consequently, since the views considered in the first section do imply changing velocity, the shots aimed at them do not hit me. The second section is concerned with a special definition of saving, advanced by me as an *afterthought* for a reason mentioned below. It was not used or implied in my first *ECONOMICA* article (August 1934), and the refutation therein contained of the objection to stable prices based on an alleged inequality of saving and investment does not depend upon it. No discussion of it therefore is required for the defence of my main position. The third section does not deal with me directly.

I do not propose to encroach on your space by tracking down the various hares raised by Drs. Haberler and Bode. Instead I will tabulate, albeit briefly, the definitions of the word "saving" that have been considered with the hope not of "contributing to the essential parts of the problem," but of "contributing much towards the clarifying of discussion and presentation." I distinguish four definitions of saving that have been referred to.

1. There is what I regard as the usual definition, namely, "the excess of income during a period over expenditure on consumption during that period." On this definition saving is always equal to investment, and the equation of saving to investment cannot be used as a criterion of banking policy.

2. There is the definition of saving supplied by Mr. J. M. Keynes in his *Treatise on Money*. This is admittedly an unusual one. It was clearly put forward not as an attempt to describe normal usage nor as mandatory upon other writers, but as a convenient vehicle for certain propositions. The substance of his propositions, which I believe to be important, could be set forth in other language without the adoption of those particular definitions. And in view of the prevailing confusion it is desirable that it should be.

3. Writers of the "neutral money" school are interested in the inequality of saving and investment. The usual definition of saving (1 *sup.*) is, therefore, of no use to them, and Mr. Keynes' definition (2 *sup.*) does

not please them. Aware of their dilemma and in pity at distress I ventured to compose a reasonable definition which would allow of inequality.¹ It may be put most simply by saying that if a man keeps the value of his "unspent margin" or monetary holding constant and disburses entirely for purposes of consumption, he neither saves nor dis-saves; if he spends on consumption less or more than this he is said to save or dis-save the difference. Considering the great difficulty of finding a definition at all conformable to common usage that allows of inequality between saving and investment, I must say that I regarded this as an extraordinarily elegant contrivance. But I have received no praise for it from any quarter.

Of course it proves nothing constructive; but it is possible to show that on this definition the equation of saving to investment requires stable prices in some sense.² I was most careful to explain, however, that I did not suppose that I had discovered a criterion of banking policy.³ When the definition proved not to give satisfaction, I did not press its advantages. On the contrary, to Mr. Robertson's complaint, I said "I am willing to acquiesce," and to Dr. Haberler's, "I accept his criticism" and "I joyfully accept his position." When my handsome gift was treated as an enemy's, I meekly took it back.

4. Definition 1 being unavailable and definitions 2 and 3 displeasing, exponents of the neutral money doctrines must needs have their eyes skinned to find a substitute. For unless a good one is forthcoming, their discussions will be for ever terminated. It is with excitement, therefore, that we turn to that offered by Drs. Haberler and Bode in the foregoing article. Is he a healthy specimen?

Saving, according to this, is the difference between expenditure on consumption goods in a particular period and the income earned in the *previous* period. Thus, if a man's income happens to be rising he can get little credit for frugality; he may refrain from spending the whole increment, but this is not to count as saving, since to find his saving you deduct his expenditure from the old income of his previous impoverished period. Indeed, if his expenditure exceeds his old income, he is said to dis-save, even although he sets aside a vast fortune and purchases the most admirable securities therewith. Or, to take the opposite case, a man whose fortunes have declined may persist recklessly in riotous living, selling his house, his lands, his securities, in order to maintain his extravagant habits—has he dis-saved? Not at all, according to this definition, provided that his expenditure does not exceed his income in the *previous* period. This definition is commended by Drs. Haberler and Bode as being "merely a *correct* understanding of the *usual* concept"!

¹ This is the definition with which Drs. Haberler and Bode deal in their Part II. It is also implied by the form in which they attempt to enunciate my main position in their opening paragraph—wrongly, because my main position does not imply it.

² The index of stability must be the same as that employed in measuring the value of the unspent margin.

³ "I am not prepared to argue that the equating of loanable funds to saving is the sole, sufficient, or even necessarily the proper objective of banking policy." (*Economist* letter, October 6th.)

It may be urged that the paradox is mitigated if the "periods" are sufficiently reduced in length. But to render an absurdity less conspicuous because smaller is not to alter its nature.

One further anomaly may be worth noting. If it is required to assess the amount of saving in a time of rising or falling income, say in England in 1934, the answer on this definition will be different according to the number of "periods" into which the year is split. With rising income the saving is greater the greater the number of periods, but with falling income it is less.

Suppose none the less we allow them this definition. Suppose even that a jury could be found to declare it the most natural of the four. What would follow? Do they seriously contend that it becomes incumbent to direct banking policy so as to make investment equal to saving in this sense? Since they claim that the table of well-defined concepts will "not contribute to essential parts of the problem," it is to be hoped not. What banking policy will serve to prevent crisis and depression is a question of fact and cannot be decided by terminological wangling. There is no objection to allowing the neutral money school a definition that will make the equation of saving to investment entail constant income, provided they solemnly undertake never to use as an argument in favour of a policy to secure constant income that it equates saving to investment.

I hope that readers will form the conclusion that the saving/investment equation has proved a broken reed as a criterion for banking policy. There are many possible definitions of saving. The fundamental problem cannot be solved by enquiring which is most conformable to ordinary usage, but which, if embodied in the criterion, will lead to the right result. And this is what members of the neutral money school have, so far as I am aware, neglected to do.¹

Finally, I submit that my argument in the original article (*ECONOMICA*, August 1934) that stable prices are in certain circumstances quite consistent with regular progress, remains unimpaired.

¹ In fairness to Mr. J. M. Keynes, who stressed the saving/investment equation in his *Treatise*, I should add that he did tackle this problem, and that he adopted his particular definition of saving, because in his judgment he had established it was right in this sense.

Fascist Economics

By WILHELM RÖPKE

I

IN view of the enormous progress in the last years of illiberal radicalism in politics and economics it has become a matter of extreme urgency and importance to study the new trends in economic philosophy and economic policy which accompany and, to a large extent, characterise this great socio-political movement of our times. If, for purposes of convenience, we label this movement as Fascism in a broader and internationally applicable sense, we may also speak, in the same short-hand way, of Fascist Economics. The question we raise, then, is this: Accepting the view that Italian Fascism, German National-Socialism and the corresponding minor movements in Europe and perhaps also in America have a common political denominator, what meaning in the field of economics are we to attribute to these mass movements? That is the question, to the answer of which this article is designed to be a modest contribution.

The subject of Fascist Economics has a twofold aspect. On the one hand, it is a subject of the greatest political interest for everybody who wishes to understand the phenomenon of Fascism in all its ramifications and, incidentally, in all its inconsistencies and, from a sociological point of view, to come to a satisfactory interpretation of it. On the other hand, one may approach the subject primarily from the economic side, where the fact that Fascist Economics purports to offer a promising alternative to Capitalist Economics would attract our curiosity even if the representatives of these Newer and Better Economics would not deafen our ears by their blaring propaganda. While it is impossible altogether to separate these two aspects, the main emphasis will here be laid on the economic aspect. In doing so, it is my sincere conviction that the economists would grossly neglect the duty laid upon them by their special training if they should persist, like Archimedes, in drawing their curves while the enemy threatens to invade the city at every moment. We must make up our minds either to join the enemy and to make his cause our own or to resist him by instigating all the moral and intellectual forces that are still left. We must recognise that the case of Liberalism and Capitalism is lost strategically even where it is still undefeated tactically. We must cease, in our supercilious aloofness, to ignore the fact that the economic ideas which are most likely to shape the future of our economic system are to-day more extra-academic than perhaps at any

previous time and that these ideas are more or less decidedly anti-capitalistic, i.e. opposed to perhaps nine-tenths of traditional economic thinking. Prominent in this respect is undoubtedly the anti-capitalism that has the Fascist flavour, in other words, that anti-capitalism that corresponds to Illiberalism in the political field.

Unfortunate as it is, we cannot avoid beginning our investigation with a number of prolegomena. The first remark to be made is that it is a task of tremendous difficulty to define clearly the essentials of Fascist Economics. Reading the literature and the verbose documents of Fascism and National-Socialism (more verbose than all the much-despised parliaments together), one might be tempted to give up the task as hopeless and to dismiss it as economic Dadaism. The anti-capitalistic programme of Communism is at least clear and unequivocal and provides a relatively well-defined basis of discussion; we know where we are and we can take our stand. Not so with Fascism. In vain we search for an economic programme embodying Fascist Economics as clearly as collectivist and planned production embodies Communist Economics. Instead of it, we find that loquacious vagueness which irritates the admirer of lucidity in style and thought as much as it seems to attract the masses. We are bewildered by an atmosphere of lyrical unreality and of terminological futility. Even the much-advertised Corporative State in Italy seems to be an afterthought, more or less incidental and little more than a clever publicity slogan, rather than the realisation of a preconceived idea. We must not forget, however, that it is just this lack of rational cohesion which, perhaps more than anything else, is characteristic of Fascism.¹ More than any other form of political radicalism, Fascism sails along with a minimum of intellectual freight—and is proud of it. Any interpretation of Fascism which fails to give due weight to this irrationalism misses one of the most important points. It is by its contempt for reason and by its preference for sentiment, incoherent ideas, prejudices and violent actions that Fascism reveals itself as a movement of the masses, thereby confirming the brilliant interpretation given by José Ortega y Gasset.² Once it has gained undisputed power, one of the principal means of upholding its authority is to suffocate any reawakening of critical and "dissecting" reasoning by monopolising the atmosphere with the same repetitious propaganda of sentimentalised ideas that marks the ascent of Fascism and forms one of the most powerful weapons in Fascist (and also Communist) strategy. These remarks may seem rather a tactless digression into the field of politics, but it is not easy to see how to avoid them if a scientific understanding of the whole phenomenon is desired. It is obvious that by stressing this side of Fascism in general a good deal has also been said about Fascist Economics.

This point is in close relation to another of equal importance. The

¹ Besides the well-known books by Georges Sorel, *Le Bon*, and others, cf. R. Behrendt, "Psychologie et Sociologie du radicalisme politique," *Revue des Sciences Politiques*, October-December, 1933.

² José Ortega y Gasset, *Der Aufstand der Massen*, Stuttgart-Berlin.

literature on the subject is abundant, but, on the whole, of little or no use for throwing light on the dark issue. One may go even farther, and say that there is to-day perhaps no other sort of literature containing so high a percentage of worthless trash. One of the main reasons for this deplorable state of affairs is the fact that Fascist Economics is a subject relating to countries where the liberty of scientific inquiry and discussion is severely restricted. Thus an essential cog-wheel in the elaborate machinery for arriving at the objective truth has been broken, and upon the "personal equation" of every author, which is in itself bad enough but is subject to correction by free discussion, is now superimposed a massive "national equation" which is much worse and, in the absence of free discussion, not subject to correction. A haze of officialism hovers over the country in question, making it extremely difficult to conduct scientific investigations into social and economic problems. For the same reason, a discussion on vital issues of politics or economics between economists of a Fascist country and those of liberal countries labours under the handicap of officialism and the irreducible "national equation" on the side of the Fascist economists and very often also of innocence on the side of the other economists, who seem to be unaware both of the officialism and the "national equation." The result is that, more often than not, an assembly of this kind degenerates into pure propaganda. For the purpose of illustration, one may well ask why, at the International Studies Conference in London (1933), where among other subjects the economic policy of Italy was discussed with Italian representatives, nobody questioned the face-value of affirmations about the Corporative State, asking bluntly whether such a thing as the much praised *Corporazione* existed at all.¹ In reading the proceedings, one cannot help thinking how refreshing it would have been if somebody had had the tactlessness to reveal the simple truth that, after four years of talking about the *Stato Corporativo*, the only *Corporazione* then in existence was—ironically enough—the *Corporazione degli Spettacoli*. It seems obvious that such a discrepancy between ideology and reality could not exist unless the apparatus for distilling the truth had been destroyed by the suppression of free discussion; even the admirer of Fascism has to concede as much. To look at the matter from another point of view, one has to consider that, in all international comparisons, Fascist Economics gets from the start an unfair advantage over Non-Fascist Economics by being unanimously praised by all economists of the Fascist country, while the economist of the Liberal country may still say about the economic system of his own country what he likes and, very frequently, derives great pleasure from abusing the rotten state at home in contrast with the earthly paradise depicted by his Fascist colleagues. It is only too natural that an atmosphere is thereby created which is very apt to lead careless observers astray. This is the reason why even the literature outside of the Fascist countries very seldom brings us real

¹ The proceedings (which, in other respects, are interesting enough) have been published under the title "The State and Economic Life" (Paris, 1934).

enlightenment. To take only one example, I mention the book by Dr. Einzig on *The Economic Foundations of Fascism*,¹ which, in its remarkable lack of critical sense and analytical insight, is quite representative of a whole class of literature and of the attitude taken by leading English newspapers. The deficiencies of Dr. Einzig's book are the more conspicuous since L. Rosenstock-Franck in his brilliant book, *L'économie corporative fasciste en doctrine et en fait*,² has recently shown what can be done, in spite of handicaps, if one takes the trouble to study the available documents with sufficient care. Even the existence of a large anti-fascist literature abroad is not of as much help as might be supposed. A conscientious investigator has to consult it, but there is no denying the fact that, on the whole, this literature is just as much a continuous monologue as the Fascist literature inside the country; both suffer from the lack of that real discussion which occurs only when thesis and anti-thesis meet each other on equal ground. It has to be observed, moreover, that, in the case of Italy at least, criticism of Fascism in general and of Fascist Economics in particular comes almost entirely from socialist quarters (largely of the Marxist brand), which seem to be set upon the task of denouncing Fascism as unmitigated Capitalism, and which therefore give expression to all kinds of distortions and misrepresentations.³ The same might be said of books like that by R. Palme Dutt on *Fascism and Social Revolution*,⁴ which, incidentally, is a good example of the attitude of "revolutionary" Socialism in England towards the phenomenon of Fascism.

II

The question now arises whether it is possible to deduce some definite principles of Fascist Economics from the inner nature of Fascism. There is a group which thinks it quite easy to do this by demonstrating that Fascism is nothing else than the plain fact that one social class is establishing by every means of violence and coercion its undisputed dominance over all other classes. In ascertaining this class one would find, as it were, the *locus* determining the political and economic trend of Fascism. The only question is how to ascertain this class, a question which gives rise to an entertaining but rather unavailing discussion. Is it the class of the capitalists? Or the middle class? Or perhaps a combination of the lower middle class and the upper layer of the proletariat?

Like the philosophy of Economic Materialism, to which it owes its

¹ Paul Einzig, *The Economic Foundations of Fascism*, 2nd ed., London, 1934.

² L. Rosenstock-Franck, *L'économie corporative fasciste en doctrine et en fait*, 2nd ed., Paris, 1934.

³ One of the leading groups of Italian anti-fascists is the movement, "Giustizia e Libertà," in Paris, which tries to combine a sort of economic socialism with political and cultural liberalism, demanding socialism in the name of liberty, evidently without having solved the difficulties arising from such a combination. In the same vein also is written the instructive book by Ignazio Silone, *Der Faschismus*, Zürich, 1934.

⁴ R. Palme Dutt, *Fascism and Social Revolution*, London, 1934.

origin, this reasoning about Fascism being at the bottom a class phenomenon sounds very attractive, since it gives the satisfaction of seeing through the ideological surface. That may be one of the reasons for the curious fact that this and similar survivals of the Marxian philosophy have deeply insinuated themselves into contemporary political philosophy.¹ As Benedetto Croce has recently shown with all the emphasis at his command, this conception of the dominant class is really not a very useful clue for political philosophy.² As there is a real heterogeneity between attending to particular economic interests and commanding the State, the idea of a politically dominant class is extremely misleading. "La vera classe dominante politica è la classe dirigente, coi suoi concerti religiosi, filosofici, morali, quali che siano" (Croce). This holds also true in the case of Fascism. The really ruling classes are the Fascists or, in the case of Germany, the National-Socialists, and nobody else.³ This statement is absolutely compatible with the obvious fact that the economic interests and sentiments of certain classes have previously been mobilised in order to help Fascism into power. It is obviously not true that the economic policy of the Fascist countries has been devised in the interests of a definite class, a fact which puzzles the advocates of the class theory and also those classes that helped Fascism into power, but is absolutely in harmony with the point of view here put forward. That is why so many discussions about Fascism seem so futile.

We arrive, then, at the conclusion that the structure of Fascism is much too complicated to fit into the patterns of Marxian or Semi-Marxian philosophy. Therefore, the question to be asked is not: What is the dominant class? but rather: What are the dominant ideas of the Fascists and the material obstacles they find in realising their ideas? That is the only possible way of getting anywhere, but when we come to set out the programme, the enormous difficulties of it are easily grasped. I believe, however, that even this is something. Going a step farther, we might say that while the dominant ideas of Fascism are a muddled set of rationalised sentiments and of sentimentalised conceptions, some order might be attained by distinguishing between the essential and the accessory ideas, the former being internationally uniform, the latter different from one Fascist country to another. These ideas are more or less interwoven, and if we also add that the obstacles to the realisation of the ideas are nationally different, it is really not to be wondered at that

¹ Among the more recent literature, the book by R. Niebuhr, *Reflections on the End of an Era* (New York, 1934), is a striking example. In this well-written and stimulating book, the author, being a theologian and a man of conservative religious convictions, presents Fascism as the desperate struggle for life of Capitalism and of the class that represents it. Starting from popular economic misconceptions (e.g. the "general glut" fallacy), he is totally condemning Capitalism and, by his own conclusions, also Fascism. In fighting at the same time against Liberalism (in its broadest sense), he is falling into the other Marxian error of conceiving liberty as a "bourgeois prejudice."

² Benedetto Croce, *Orientamenti*, 2nd ed., Milan, 1934, pp. 34-49.

³ This has been clearly demonstrated also by L. M. Lachmann, "Probleme des korporativen Staates," *Zeitschrift für die gesamte Staatswissenschaft*, April 1933.

Fascist Economics do not represent a fixed and clear-cut programme. What else can we expect from a combination with so many and largely elusive variables, where the leading ideas are of a nebulous character, easily changeable and interwoven, and where the obstacles they meet vary from place to place and from time to time? It has to be observed, however, that there is always a very natural tendency on the part of the Fascist government to do everything possible to create the impression, despite the wavering and hand-to-mouth character of its actual economic policy, that it is following the bold and well-defined course which it claims as the original invention of Fascism and as its contribution to world history. In order to achieve this, it likes to coin more or less pompous terms for rather trivial things and to relabel economic institutions without much changing their real character. There is no denying the fact, for instance, that the famous "Carta del Lavoro" of 1927 falls, in reality, rather short of the importance claimed for it. In its alleged revolutionary character it has been compared with the "droits de l'homme et du citoyen" of 1789, but in reality it contains, besides some vague statements about work being a social duty and so on, regulations concerning trade unions, labour courts and similar matters which, in other countries, one finds in unobtrusive corners of the statute books. As we shall see later, the same might be said of the *Stato Corporativo*, which has replaced the "Carta del Lavoro" as the *pièce de résistance* of Fascist publicity. Again, what is called in Germany "Ständischer Aufbau" is largely terminological in character, since it consists mainly in rebaptising the existing economic associations and replacing some of their directors by party men, though it must be conceded that the National-Socialist government has had the laudable frankness to stop this at an early date. Surveying this tendency, one might be tempted to call it, somewhat caustically, *terminological economic policy*. This revelation of its real character does not necessarily imply that it may not serve some useful purpose.¹ Very possibly it does, but that is obviously not the point here.

It must now be our task to name some of the general principles of Fascism which are likely to influence the trend of Fascist Economics. The first thing we can say in this respect is that Fascism is distinctly illiberal, in the sense of being decidedly totalitarian, or in other words, that it wants to subject every activity of the individual to the omnipotent State, as it were, with the ideal of the Termite State before its eyes.² So far there is no difference between Fascism and Communism. But Fascism differs from Communism in that, in accordance with the fundamental sentiments of those classes which helped it into power, it

¹ It must be noted, in justice towards Fascism, that the tendency indicated above is a time-honoured part of the art of governing. As a more recent example the purely terminological "socialisation" in Germany in 1919 has to be recalled here.

² Curiously enough, the rector of a large university in Germany has recently praised the Termite State as a model for the National-Socialist State, whether in earnest or not is not reported.

wants no revolutionary changes of the economic and social structure of society. This has a twofold consequence. While Communism has uncompromisingly extended its totalitarianism to the economic sphere, making every economic activity an activity directed and controlled by the State, Fascism wants to combine its general totalitarianism with the individualistic character of society. The result is interventionism plus collectivist phraseology. To describe more fully the type of an economic system characterising Fascism, one might say that the middle course which Fascism is steering between a competitive and a collectivist economy leads, in practice, to a heavily monopolistic-interventionist society adorned by terminological and phraseological ornaments, with an extensive governmental control of prices and capital investments and large "socialisation of losses," whereby the capitalistic institution of bankruptcy is, to some extent, replaced by concentration camps and Lipari Islands. Whether this is called the *Stato Corporativo* or "*völkische Wirtschaft*" is irrelevant, since the result is more or less the same. Evidently this is not a system to make everybody happy; the workers complain about its ruthlessly capitalistic character, while the industrialists and the farmers groan under regimentation and all-embracing bureaucracy, though the latter are prepared to put up with it, in the well- or ill-founded belief that the only practical alternative would be Communism. Thus a nice balance of power is reached which gives the necessary, though somewhat uncertain, equilibrium to the whole system. On the other hand—and this is the second consequence of the compromise, which, in contrast to Communism, is inherent in Fascism—powerful classes are left intact, and these remain as potential obstacles against any attempt at revolutionary economic changes. The industrialists, merchants, bankers and farmers must not be irritated so far as to make them feel that there is no longer any real difference between Fascism and Communism, while there is always a large proletarian and intellectual group which wants this difference diminished. How powerful some of these obstacles can be is proved by the notorious fact that neither in Italy nor in Germany has Fascism been able to tackle the problem of the feudal sector represented by the great rural estates. Finally, it must be observed that the monopolistic-interventionist economic system which is the result of all these conflicting forces has the double merit of being a job-providing system for the Fascist partisans, which is very important for Fascism as a mass movement, and of allowing the government to claim the economic successes for itself and its marvellous foresight and to heap all the blame for the economic shortcomings on the private entrepreneurs and the "liberalistic" principles they represent, while, in reality, just the opposite is more likely to be true.

As far as the economic relations with foreign countries are concerned, this monopolistic-interventionist system is nationalistic, as every economic system departing from Liberalism must be, since it emphasises the economic importance of the national boundary. This natural tendency is strengthened by the innate nationalistic sentiments which are another

essential part of Fascist ideology.¹ It is a notorious fact that Fascist nationalism is so intense as to lead to frank Bellicism, i.e. to a spirit placing preparedness for war and military considerations above everything. This is a point so important in every respect that something more must be said about it. Little of social and economic history can, indeed, be understood without due consideration of changes in the military system, from the times of feudalism down to the present day, so much so that a case could be made for a military philosophy of history. The latest phase of this is the democratisation of the military system everywhere which, in the last resort, means that war demands the "total mobilisation" of everything which constitutes, directly or indirectly, the military force of a nation. Whether we like it or not, actual developments are drifting mercilessly in this direction. War has ceased to be an affair of the armies alone, uniformed and more or less feudally constituted, and has become—as everything else—a matter of the masses of men and goods. Therewith, also, the sociological structure of the army has changed, even in Germany, where it was stripped of most of its feudal character in about 1917, when Ludendorff reorganised it radically. The military machine has become an up-to-date, capitalistically rationalised enterprise, with the officers as engineers. All this, which can here be touched upon only superficially, has far-reaching economic consequences which are nowhere fully recognised. As Fascism is most prone to subject everything to military considerations, so also are those economic consequences most conspicuous in the Fascist countries. The economic consequence most likely under these circumstances is the relentless militarisation of the whole national economy even in time of peace, that is to say, the tendency to shape the entire economic life of the nation in accordance with the requirements of "total mobilisation," and to establish a planned economy under military aspects.² Only in this way, it is

¹ It must be understood that the collectivist spirit is, in the long run, only a negative spirit, as it demands adversaries against whom public sentiment must be aroused. To mobilise the masses and to imbue them with an intensive "we"-consciousness, their hatred and fear must be directed against common foes inside and outside of the country. Inside the country Liberals, Marxists, Freemasons and, in Germany, the Jews, serve this purpose, and outside the country, the foreign world in general and some favourite enemy in particular. From this it is already clear that the structure of Fascist nationalism is a rather complicated one, since "horizontal" nationalism is interwoven with "vertical" nationalism, which means the end of the old liberal-democratic nationalism. In other words: if, by Fascist propaganda, things have progressed so far that people of the same political convictions, but of different countries, understand each other better than people of different political convictions but of the same country, the old conception of the nation is a thing of the past, and with it goes the old conception of patriotism which, after all, is the inheritance of the liberal-democratic era. In this connection, it is most interesting to note that, in the Fascist countries, sentiments against the "inner enemies" ("vertical nationalism") are commonly much stronger than those against the external enemies ("horizontal nationalism"). These are some aphoristic remarks which go far, perhaps, to explain why the economic nationalism of the Fascist countries is sometimes not as strong as might be expected.

² Recent German literature is particularly full of the type of reasoning outlined above. Already it has become almost impossible to give a complete bibliography of

thought, can the maximum of the "potential de guerre" be reached, and as this is declared a matter of life and death for the nation, recourse to planned economy seems unescapable. Economic Liberalism, consequently, would come into bitter conflict with the demands of national defence and be compelled to submit—honourably, but irrevocably, thereby testifying that Liberalism, in the end, is swallowed by its own children. This would be true at least as long as no effective way has been found to domesticate Mars. But must this whole reasoning be accepted, even supposing that war and "total mobilisation" have to be admitted? That soldiers are always inclined to apply the principles of military organisation to the organisation of the national economy seems only natural, although the structure of the two are entirely different, but it is quite another question whether this point of view is acceptable to an economist. The advocate of planned economy has no right to protest against the military type of planned economy, for he demands the replacement of the present economic system, governed, roughly speaking, by the democracy of the consumers, by an autocratically planned economy with an arbitrarily adopted plan imposed from above. He must therefore leave the choice of plan to politics where, economically speaking, one plan is just as good as another. But if we examine the reasons in favour of a military planned economy on their merits, we must come to the conclusion that there is really much less in them than appears at first sight. Of course, some kind of intervention is inevitable in order to bring the economic structure of a country into full harmony with its military needs, the scope of this intervention depending on the economic structure of the country in question. On the whole, however, the military argument contains nothing to disprove the fact, equally established by experience and reasoning, that the competitive "market economy" renders the maximum of satisfaction of all wants which present themselves on the market, including the wants of a military character represented on the market by the State as consumer. Even the governmental intervention which may seem inevitable here or there cannot be pursued too far without defeating its own purposes. It is impossible for a country to have, at the same time, the largest possible population and the qualitatively best, the largest possible industry and the greatest possible independence in food and raw materials, if this must be brought about by all kinds of governmental intervention. Too much

this literature. The main idea is expressed well, but with an almost charming naïveté, in the monthly magazine, *Widerstand* (October 1934), from which I take the following passages (quoted from the *Journal des Nations*, October 31st, 1934): "If it is clearly realised how decisive an advantage of a few days is in modern war, one understands the necessity to place, even in time of peace, every economic activity of a national territory under the direction of the State, unified, methodical and controlled by the military point of view. . . . The national economy must be organised on the same principles as the army proper. . . . The same reasons which, at the end of the Thirty Years War, induced the State to withdraw the business of war from the hands of the condottieri by establishing the army of the State, now force the State to take the same measures with regard to economic activity."

doctoring of the economic structure of a country is the surest way to make it less fit even for military purposes. All this is particularly pertinent in the case of Germany, the country where, at present, military anti-capitalism is being urged with the greatest vigour. To sum up, even if unrestricted armaments have to be accepted as something inevitable, economic Liberalism has no need to surrender. It is not to be marvelled at, however, that, in Fascist countries, there are writers who, going even further than the military planners, demand the militarisation of the whole society, though it will surprise those who have not followed his recent literary activity, to find a man like Werner Sombart in this group. In his latest book, *Deutscher Sozialismus*, he uses his unwearied and versatile pen to give voice to Bellicism of the wildest kind, cheerfully adopting a "war for the sake of war" attitude and demanding the valuation of everything on earth according to its military usefulness. It follows straight from Sombart's propositions that, in his ideal Sparta, a higher value must be attributed to a new poison-gas than to Goethe's *Faust* or to Mommsen's *Römische Geschichte*, or, for the matter of that, to Sombart's *Moderner Kapitalismus*. If Sombart, at the end of his academic career, has come to the final conclusion that his country must be turned into one large barrack-yard, it will be futile to argue with him and to tell him that he is demanding something inhuman. The point here is that this inhuman militarisation of the whole of society and the perversion of the natural order which it involves is certainly wrong even from the purely military point of view—for reasons which can be read in the immortal funeral speech of Pericles as it is handed down by Thucydides (*Historia*, Lib. II, pp. 37-45).

The Fascist tendency towards the militarisation of the national economy corresponds to a more general attitude of Fascist ideology. It is the attitude of philosophising about the alleged superiority of so-called political considerations over economic ones—"der Primat der Politik über die Wirtschaft" in the terminology of German literature—which is especially prolific in developing this idea and in vaguely philosophising about it. This lofty treatment of economic considerations sounds profoundly philosophical, and gives those who indulge in this haughty attitude (and who themselves, generally speaking, are not too badly off) the air of heroic despisers of bread-and-butter questions. But here again it is the unpleasant duty of the scientific critic tactlessly to interrupt the rhetorical fireworks with some prosaic remarks. First of all, the whole problem of which comes first, politics or economics, is itself a political one and can never be decided scientifically, since the science of Economics is not concerned with ends in themselves. The problem, therefore, implies a *petitio principii*. What the science of Economics can and must do, however, is to raise its voice whenever the system of ends imposed by the Fascist government is so irrational as to bring the different ends into conflict with each other, thus engendering results which are not desired by the government itself. This applies to all countries; the only significant difference between Fascist and

non-Fascist countries is the fact that, in the case of the former, the preference for certain ends is imposed by a government which does not ask for the consent of the people but endeavours to make propaganda for its own preference while, at the same time, it mercilessly silences not only any criticism of the ends chosen but also any criticism of the possible disharmony between the different ends, however much this may be a legitimate object of scientific analysis. Consequently, the "Primat der Politik über die Wirtschaft" more often than not is just another word to denote the privilege of dilettanti to ruin the national economy and to provide them with an alibi whenever their efforts to augment the much despised bread and butter have failed. In other words: Fascist Economics is running on two tracks: as far as possible, the attempt is made to claim for Fascist Economics that it results in a superior economic system, but, whenever it becomes too obvious that it is a road to privation rather than to plenty, the higher Fascist Ethics in putting political goals above economic ones are praised. To complete the number of inconsistencies, Fascism combines this idea of the primacy of politics over economics with the idea of the Corporative State, i.e. of a State the structural principle of which is economic and not political. For whatever the Corporative State is, its meaning cannot be demarcation, but permeation, of politics and economics, while it is the very essence of the liberal-democratic system (with its parties, its parliament and the corresponding ideologies) to organise the State, as far as possible, after other principles than naked economic interests. I shall deal with this question at greater length in the next section, where the special forms of Fascist Economics in Italy and in Germany will be discussed, with particular regard to the recent literature on this subject.

III

As is well known and as has been mentioned on several occasions in this article, the Italian government has made the *Stato Corporativo* the centre of the discussion about the economic system in Italy. The propaganda made around this magic word has been so intensive that almost the whole world takes it for granted that it is not only a word, but a real thing of the utmost importance, which might be imitated by any other country seeking a way out of the present economic crisis. The uncritical sense with which this view has been accepted is not altogether to the credit of the intellectual level of our times, the less so since until very recently the subject of the discussion, i.e. the *Corporazioni*, did not exist at all. Many critics of the *Stato Corporativo* have contented themselves, indeed, with ridiculing this palpable gap between theory and reality,¹ but this attitude is obviously very unsatisfactory, if only for the

¹ I. Silone (*Der Faschismus*, Zürich, 1934), e.g. declares flatly: "Rundum wird vorgeschlagen, dieses korporative italienische System zu adoptieren. Und dabei existieren in Italien die Korporationen überhaupt nicht. Ich kann sie nicht beurteilen, ich kann den Leser nicht über sie informieren—sie sind einfach nicht" (p. 227).

fact that several months ago twenty-two Corporazioni were at last created. There *are* now institutions which the Italian Government calls Corporazioni, and it must be our task to find out what they mean and how far they constitute the Stato Corporativo. In this respect, no real progress can be made until a grave confusion of ideas pervading the whole discussion about the Corporative State has been cleared up.¹ If we compare the real character both of Fascism and Corporativism (in its broad and traditional sense of a system of economic self-government of the large groups of professions and industries after the medieval corporations) we cannot get away from the conclusion that these two systems can hardly go together. They are, indeed, so incompatible with each other that Corporativism under Fascism must mean something quite different from the traditional and legitimate sense of this word and from what a great part of those who are speaking of "Corporative State" and "Ständestaat" seem to have in view, i.e. a State the *structural principle* of which is the Corporation. It would be preposterous to assume that the Fascist State would be willing to yield a single atom of its Absolutism to really autonomous Corporations. The Italian Government certainly did nothing of the kind in creating the Corporazioni. As a careful study of the legal foundations of the Corporazioni shows, every care has been taken to get all possible activities of the Corporations under the strictest control of the State.² It is obvious, then, that in the case of a Fascist country it is quite inappropriate to speak of a Corporative State, since it is not the State that is "Corporativo" but the Corporation that is "Statale." It would be wrong, however, to dismiss the whole Stato Corporativo as mere window-dressing. It is certainly more than that, and perhaps we are coming nearest to the truth if we interpret the Stato Corporativo as a huge Fascist institution serving three purposes. First of all, it serves the *political* purpose of organising the national economy in such a way as to facilitate its control and permeation by the Fascist Government. So far, the Stato Corporativo is nothing else than a useful device of the technique of political domination, and I am not sure whether this is not its main purpose. It cannot be denied, however, that though the autonomous character of the medieval corporations is totally absent, the Corporativism of Fascism contains another element of the medieval corporativism which points to the *economic* import of the Stato Corporativo. What I have in mind is the tendency, inherent in every corporativism, to lay all sorts of restrictions on the competitive character of the economic society by a sort of universal cartellisation, enforced and

¹ For this purpose the following books are rather helpful: E. Böhler, *Korporative Wirtschaft*, Zürich, 1934; L. Rosenstock-Franck, *L'économie corporative fasciste en doctrine et en fait*, 2nd ed., Paris, 1934; L. St. Kosier, *Staat und Wirtschaft, Das Problem der berufsständischen Repräsentation*, 3rd ed., Vienna, 1935. These books are the only islands I have sighted amidst the majestic ocean of confusion.

² The comparison with the position of the guilds and corporations during the period of Mercantilism suggests itself. The Absolutism of that period could not endure the existence of autonomous corporations and turned them, therefore, into simple organs of its totalitarian system.

directed by the State, the most powerful means to this end being perhaps the strict control of new investments in the several fields of industrial activity (a sort of *numerus clausus* principle). The economic ossification brought about by this policy is exactly what producers all over the world seem to be clamouring for at the moment and what those who are incessantly decrying the competitive character of our economic system seem to regard as a consummation devoutly to be wished. It is perhaps just this that is at the bottom of the world-wide popularity of the idea of Corporativism. It has already been pointed out that the name of this system is, except for publicity purposes, absolutely irrelevant; the economic policy of the Third Reich amounts, for all practical purposes, to the same thing, and even the motley fabric of the New Deal shows a strong thread of this striking colour. In contemporary Italian literature, it has been the great merit of Professor Einaudi to direct attention to this danger of what he calls with an untranslatable term "*trincerismo economico*."¹

Leaving the question of the economic significance of the *Stato Corporativo*, we now come to its *third* function, which we may call its *social function*, since it concerns relations between employers and employees and all the questions connected therewith. All the well-known facts about the prohibition of strikes and lock-outs, Fascist Syndicates, labour courts and other items have to be mentioned in this connection. In this respect, the *Stato Corporativo* is just another name for all these facts and for the regimentative character of the Fascist social policy. To discuss the economic consequences of this policy, however, would lead beyond the limited bounds of this article.

It seems that these are the real reasons why the Italian Government has adopted the Corporativismo as the special form for the monopolistic-interventionist policy which is more and more carrying the day in all countries. Several Italian writers claim that this form is superior to the form adopted in non-Fascist countries, but it is extremely doubtful whether this claim is justified. In this connection, the merits of Fascism as an authoritarian political system and those of Corporativism must be clearly distinguished. There cannot be any doubt, of course, that a strong, independent and authoritarian government, with a clear insight into the real mechanism of our economic system, could do much to put an end to the present pitiful state where the economic policy of a country is little short of a resultant of the private economic interests as determinants, and to restore the position of the State as Umpire instead of the State as Spoil. It is difficult, however, to detect any symptoms of

¹ L. Einaudi, "Trincee economiche e corporativismo," *La Riforma Sociale* (Turin), November-December 1933, and also in another article "La corporazione aperta," in the same periodical, March-April 1934. That even Italy—and perhaps that country with its glorious tradition in the science of Economics more than many other countries—has still advocates of sober economic reasoning is also shown by the example of Attilio Cabiati (cf. his recent book, *Crisi del Liberismo o errori di uomini?* Turin, 1934). Many enthusiasts of Antiliberal Economics would do well to consult these authors.

the alleged superiority of the Italian economic policy and to escape the impression that it is on the average no worse and no better than the economic policy of most other countries in these days, all the propaganda to the contrary notwithstanding.¹ The influence of vested interests in Italy seems to be even stronger than in many "demo-liberal" countries, which proves, after all, the eternal truth of the famous saying of Cavour: "Je préfère la pire des Chambres à la meilleure des antichambres." But even if this were not so, it would not be the merit of Corporativism but of Fascism. On the contrary, the more Corporativism is genuine, the more it is characterised by a real autonomy of the corporations, the greater will be the danger that the economic policy will be influenced by private interests. That is what so many well-meaning advocates of the Corporative State (in the proper sense, indicated above) do not seem to realise.²

Most of what has so far been said about Fascist Economics in general and much of what has been said about Italian Fascist Economics in particular applies also to the case of *National-Socialist Germany*. It is, therefore, necessary to add little in order to complete our survey in this direction, particularly since some peculiarities of the German case have already been discussed. To begin with, the romantic streak is here much stronger than in Italy, where romanticism is more confined to the political sphere. One of the dominant elements of the economic ideology in Germany to-day is a strong feeling of reaction against urbanism and technicism, a sort of nostalgia for greater simplicity and spontaneity in economic life, rather on the lines on which G. K. Chesterton has preached in England. The slogan "blood and soil" which is so popular nowadays in Germany reflects this attitude. One has only to point to the agrarian policy of the Third Reich, especially to the Reichserbhofgesetz,³ in order to illustrate the practical outcome of this "blood and soil" attitude. The autarchistic development in Germany which, in spite of all assertions to the contrary, is the result of deliberate policy rather than the inevitable effect of uncontrollable forces, belongs to this same class.⁴ So does the whole literature about the "Ständestaat." This is not the

¹ The material is well assembled in the book by L. Rosenstock-Franck, *op. cit.* Cf. also his article "Le corporatisme fasciste" in the periodical *Esprit* (Paris), Nos. 23-4, 1934. In Rosenstock's book one finds also an instructive discussion of the attempts of several Italian writers to develop a Corporativist economic doctrine.

² In this connection, it has to be recalled that, in modern times, Walther Rathenau (*Die neue Wirtschaft*, Berlin, 1918) has been the first to put forward the idea of Corporativism, and that the seed sown by him (and by Wissel and Moellendorf) came up, in 1919, in the several autonomous economic bodies in Germany. The experiences made with these bodies have been so deterrent that they should kill all naïvetés of the contemporary enthusiasts for the "Ständestaat."

³ It is the main object of this law to subject practically every German farm, for succession and for alienation, to the principle of the English entail. The abrupt and red-tape manner in which traditions and sentiments of more than a thousand years have been overthrown by this law (to the greatest discontent of the farmers) is a good example of the contradiction between economic romanticism and the rationalistic and authoritative way of imposing it.

⁴ Cf. W. Röpke, *German Commercial Policy*, London, 1934.

appropriate place to discuss the merits or demerits of economic romanticism. We may feel great sympathy for it or ridicule it. The point, however, which is important in this connection is the plain fact that it is in the centre of innumerable confusions and contradictions. The first contradiction is the apparent conflict between a romantic economic policy and an economic policy which aims at maximising production or even at keeping up a humanly bearable standard of living. Another grave contradiction becomes obvious when one considers that political absolutism and totalitarianism—the epithets of Fascism and National-Socialism—are absolutely incompatible with that spontaneity which economic romanticism is driving at. The climax of confusion is reached when the very men who are indefatigable in attacking—rightly or wrongly—the rationalistic and mechanistic character of industrialism and urbanism of our times are wallowing in schemes for economic planning, organisation and regimentation. This is one of the numerous reasons which make, e.g., Werner Sombart's *Deutscher Sozialismus* so unreadable. Almost all German books on the "Ständestaat" also suffer from the same confusion, even those by Othmar Spann in Vienna and his followers (Andreae, Heinrich and others), though one would expect that their catholic tendencies would make them more immune from sinning against the inner nature of their real programme, which demands spontaneity and multifariousness instead of rationalistic centralisation and pagan totalitarianism.¹

Another thing is much more striking in Germany than in Italy. There is a pathetic contrast between the vigour with which the Old ("Liberal") Economics are decried by the new set of economists and the exceedingly poor crop of new or even newly polished ideas which are to constitute the New Economics. In the last two years, no book and no article of any importance or originality has been written by any of the New Economists, to say nothing of authors outside the Universities. It serves really no purpose to name even a few titles and authors and to subject them to a critical analysis, and there is not much hope that the world will ever get much enlightenment on the pressing problems of our science from this quarter. Almost everything that is presented as something new and revolutionary reveals itself, on closer inspection, as old wine in new bottles with eye-catching labels. If one reads, for instance, that, in the new conception of Economics, the capitalists are to be

¹ As a recent example I would refer to the book by Walter Heinrich, *Die soziale Frage, ihre Entstehung in der individualistischen und ihre Lösung in der ständischen Ordnung*, Jena, 1934, which gives a good idea of the view of this school. In the book of another member of this school (Wilhelm Andreae, *Kapitalismus, Bolschewismus, Faschismus*, Jena, 1933), one finds a passage referring to the contradiction indicated above (p. 186), but the author dismisses it lightly. In order to realise the contrast between Fascism and the Economics of modern Catholicism one has to consult the very important Encyclical of Pope Pius XI, "Quadragesimo anno" (1929), which is the spiritual basis of the present economic and political reform in Austria. Cf. also the interesting collection of papers by leading Austrian authorities "Der katholische Staatsgedanke," Vienna, 1934.

considered only as trustees of society and that the principle of service ("Leistungsprinzip") is henceforward to dominate economic life, one really wonders whether the authors have ever read Adam Smith. It seems safe to finish this article with the conclusion that Fascist Economics has nothing new to offer, either in practice or in theory. The present position of our economic system is certainly untenable, but the alleged alternative which Fascist Economics seems to present is no real alternative at all. May it not be high time to reflect whether the restoration of liberty, resilience and spontaneity of economic life would not be, after all, the most reasonable way out of the present impasse, provided it is not the restoration of an historical period, with all its errors, inconsistencies and even follies, but the restoration of principles based on eternal ideals?

Book Reviews

Ministry of Labour Reports of Investigations into the Industrial Conditions in Certain Depressed Areas of West Cumberland and Haltwhistle, Durham and Tyneside, South Wales and Monmouthshire, Scotland.
Cmd. 4728. 1934. 8vo., 240 pp. 3s. 6d.

My recollection of learning arithmetic is that subtraction was a much lighter job than addition, as there were only two quantities to be dealt with in the examples instead of half a dozen or more. But in economic real life addition is easy, and subtraction bears out the old jingle in which it is represented as driving us to distraction. The "depressed areas" till quite recently had been for long periods adding to their population by natural increase and net immigration at a rate which made it grow faster than that of the rest of the country, and nobody thought of this as being anything except a sign of superior prosperity which should be welcomed. The immigrants bettered themselves by coming in to recruit thriving industries, and at the same time by removing themselves and their competition, improved conditions in the agricultural areas from which they came. No doubt their arrival tended to keep down wages in the thriving areas, but as this meant no change, it was scarcely noticed. Everything was for the best, and we can imagine how G. R. Porter would have enjoyed describing it in edition after edition of his *Progress of the Nation*.

But now that shrinkages in demand and improvements in methods of production call for a reduction of the labour force in some of the districts which used to be areas of immigration, what a change we see! Each of the four Investigators recognises that "transference" from his area is highly desirable, but finds the difficulties enormous. The West Cumberland miners are so attached to their corner of the country that, if placed out in the Kent coalfields, they soon find their way back, even if they have to foot it, like the traditional cat. In Durham the men are too old and too much married. In South Wales the investigator "found a measure of resentment that the young and able-bodied should be in the necessity of leaving the district to find employment." In Scotland—how are the mighty fallen!—there is "absence of a spirit of adventure," and the rosiest promises could not secure any boys for the Gravesend Sea School and the merchant service. Both in West Cumberland and Scotland Unemployment Insurance is observed to "have had some effect in creating a lack of enthusiasm for drastic changes which involve some measure of risk."

The investigators are painfully aware, too, that the sympathy felt for the depressed areas in other districts seldom shows itself in a warm welcome to transferees. I, myself, living in one of the most prosperous and growing towns in England, recently came across a striking example of the local jealousy and incapacity to put oneself in the other person's place, which makes necessary and desirable movement more difficult than it need be. A housemaid of good intelligence and kindly disposition said, "It's a shame that all those Welshmen are being employed on the by-pass; they ought to be Oxford men." "But," I remonstrated, "it is scarcely for you to object to Welshmen being employed here, considering that your name is ——" (an unmistakably Welsh name). Slightly disconcerted, she replied, "Oh, well, my people have been in England a long time." I pursued my advantage: "Besides, you were born and brought up in Reading, and here you are, taking the bread out of an Oxford girl's mouth." "But," she protested, "there are no big houses in Reading."

Of course, the Investigators, as they occasionally remind us, see the "stickiest" portion of the people affected. In the palmy *decennium* of 1861-71 the "registration" County of Durham gained 82,000 persons by migration; in the *quinquennium*, 1926-31, the Registrar-General estimates that the county proper lost 129,000 by migration, so that in spite of the disappointing results of suggested and assisted "transference," Galileo's famous aside is still appropriate, though the collapse of 1931, and the resulting cry for reduction of expenditure, doubtless checked the movement for a time.

If there is to be little or no revival of the old principal industries of the depressed areas and no sufficient migration into other industries located elsewhere, the remaining resource is to get other industries located on the spot. This is apparently realised by some of the people concerned, who do not, however, think how to make their district attractive. We are told that in the Welsh area it is generally believed "that the government of the country can either start up or locate new industries wherever they choose," and the borough of Merthyr and every urban district council in the neighbourhood "consider that their localities are suitable for the establishment of new industries, and go so far as to say that the government should be in a position to compel people starting new industries to do so in their districts." The Investigator for Durham thinks that the reputation of the district for militant trade unionism and socialist local administration makes it unattractive, and he also attaches some importance to the repellent appearance of "abandoned pits, closed shipyards, derelict buildings and unemployed men." (He might have recommended those who are repelled to look at the three Morris works in Oxford, the first and biggest of which was started in a derelict school, the second in a closed roller-skating rink, and the third in the abandoned clay-pit of a disused brickworks.) Though Billingham, the one bright spot of the Durham district, seems somehow to have escaped the baleful influence of the fear of war, that influence prevents the manufacture of

aircraft on the north-east coast, but is not strong enough to cause it to be safely tucked away in West Cumberland.

As a last resource all four Investigators are driven to dally, though to their credit, it must be admitted, in a very quarter-hearted fashion, with the idea of "back to the land," advocated by out-of-date politicians ignorant of the first elements of economics. It is admitted that there is already such plenty of agricultural produce that agriculture is not at all a well-paid industry, but it is thought that the unemployed, if placed on the land, might eat a little more and at any rate would be kept amused.

Anyone reading the reports with ordinary intelligence must be struck by the intense conservatism of the people which they reveal. It is regarded as a wicked thing that everyone should not be able to earn a good living in the place where he was born. If a pusillanimous government has failed to compel foreigners to go on buying as much as before of things which the country has been in the habit of making and selling to them, and, influenced by the obsolete doctrine of *laissez faire*, has allowed improvements in production to be introduced, it is expected at least to arrange that new industries and extensions of old ones shall be located in the areas particularly affected by the changes, so that those areas may retain their existing population and the whole of their natural increase whether small or great. The old competition between districts for industries and population is to be replaced by Planning, and the aim of Planning is to be, not as we might reasonably expect, to redistribute the population on the best scientific principles, but to keep people where they were born. In this it seems to have a close resemblance to the Feudal System, but the uncritical acceptance of the distribution prevailing in 1929 or thereabouts as the ideal, suggests a sort of suddenly truncated belief in the merits of the Competitive System which brought that distribution into existence.

But if unemployment has increased, there is no need to attribute its increase to anything so improbable as an increase of this conservatism. The conservatism, though diminished, gives more trouble because the force which used to crush the objections to change and even slay the more obstinate objectors has been destroyed by modern abundance and humanity. No matter how often a Cumberland miner may foot it back from Kent, we will not threaten him with "starvation for himself and his family."

We will send Commissioners with two millions in their pockets (and more to follow) and let them try to find a solution more humane.

EDWIN CANNAN.

The Great Depression. By LIONEL ROBBINS. Macmillan. Pp. xiv + 238. 8s. 6d.

In this remarkable tract of 200 pages Professor Robbins offers a condensed narrative and a coherent interpretation of the greatest depression in history. His brief epitome may be even more briefly epitomised as follows. The slump of 1929 was, like its predecessors, the inevitable

result of an over-expansion of credit, leading to an over-development of the industries producing capital goods. Centring in America and the countries fed by American capital, this over-expansion was, nevertheless, largely the result of Britain's failure, after 1925, to bring herself into international equilibrium. The slump has been made peculiarly severe, and recovery peculiarly difficult, by the attempts made to maintain consumption at a high level: by State-supported rigidities in the markets for commodities, capital and labour—themselves the product of a philosophy of "interventionism" dating largely from the war: and by Britain's destruction of the international gold standard. For the restoration of lasting prosperity there is required not merely an abstinence from deflationary policies and the restoration of an international standard of value, but the complete reversal of the whole tendency towards State interference with industry and so-called "economic planning."

Thus, in the course of his survey, Professor Robbins is led to pronounce judgment on many of the most hotly disputed subjects of present-day economic controversy: the proper objectives of monetary policy and the causation of the trade-cycle: the effect of restriction-schemes on total purchasing-power, and of reductions in money wage-rates on employment: protection and free trade, fixed and moveable exchanges: the feasibility or otherwise of steady progress under Capitalism and of rational accounting under Socialism. It would be an unwise critic who would attempt, in the brief space of a review, to dog his author's footsteps over so vast a range of thickly wooded country. It must suffice to offer one or two reflections on the book as a whole, and then to select one or two of its central topics for special discussion.

First, there can be no two opinions about its high intellectual and artistic quality. If its self-imposed limits preclude elaborate development of its numerous themes and sub-themes, it contains an amazing amount of solid argumentation. Lucid narrative and illuminating comment are interwoven with extraordinary skill. The style, pungent and pugnacious, eschews bitterness and vulgar abuse, and ascends at times into realms of sincere and moving eloquence. Books on economics which have also the stirring quality of a work of art are not so common but that all economists should join to give them welcome; while the adherents of the austere school of thought which finds expression in this work owe Professor Robbins a special debt for proving that the devil, or what they deem such, has not collared all the best tunes.

Secondly, Professor Robbins naturally presents his judgments as they exist in his own mind—bound together into an interconnected whole by—I dare not say a doctrine, but at least a point of view. This unity, indeed, is part of the secret of the book's appeal. It is perhaps the more legitimate for a reviewer to point out that the reader is under no moral or intellectual compulsion to swallow the menu as a whole, but is at liberty to dine *à la carte*. It seems to be quite possible, for instance, to agree with Professor Robbins' diagnosis of the primary phase of the depression without agreeing that no monetary action can usefully be taken to

counter its secondary phases: or again, to agree that the prime necessity is to restore the confidence of the business world, but to draw an exactly contrary inference as to the effectiveness, for this purpose, of the introduction of a scheme of protective tariffs or of regulation of output: or again, to agree that under certain conditions wage-rates should be reduced, but to hold that mass purchasing power should nevertheless be sustained by measures which do not involve the maintenance of industrial costs. For such eclecticism there seems to be warrant in Professor Robbins' own words. In an interesting passage towards the end of the book he expressly denies that his conclusions are inspired by any metaphysical theory of the limits to the sphere of State action, and claims in effect that his objection to each particular piece of "interventionism" discussed has been established on its own merits. It is this claim which the conscientious reader of this book must test for himself in detail, undrugged by the atmosphere of a unifying philosophy which breathes through its pages, and which, if he does not take care, will lead him to accept the next proposition of Professor Robbins simply because he has accepted the last.

I must content myself with indicating one or two trains of thought which may be set in motion by this stimulating book. Has Professor Robbins really shown that the Austrian theory of "over-investment" is adequate to account for the phenomena of 1929 in the United States? In particular, will the survival of moderate activity in the consumable goods industries through 1930—a feature which can be paralleled from many previous depressions—bear the interpretation which he puts upon it—that it was this activity which, by attracting to the trades concerned the lion's share of a limited stock of the factors of production, retarded recovery in the capital-goods industries? Is it not natural that after an orgy of construction there should be a high level of output from the newly created capital instruments, and would a policy which compels existing instruments to work far below capacity really be the best method of evoking a demand for new ones? But, indeed, even if Professor Robbins' diagnosis is right, does his prescription really follow logically from it? For, according to that diagnosis, it was the orgy of capital construction that was the "artificial" thing, and the subsequently enhanced demand for consumable goods which represents a return to "natural" preferences. Is not the advice to sacrifice everything to the restoration of profitability in the capital-making trades, tarred, for good or evil, with the same brush as efforts to achieve the same end through "monetary manipulation" of the rate of interest? In an interesting passage on p. 178, Professor Robbins advocates the recrudescence of foreign investment, especially for Great Britain, largely on the grounds that it will give the capital-making industries plenty to do. Such an argument comes naturally enough from those who hold that "structural rigidities" are so ingrained in our system that policy must humour them: does it come so logically from one who is never tired of asserting that there must be no "bolstering up" of situations which do not accord with consumers' present desires?

In championing the claims of the consumer to cheapness at all costs, Professor Robbins writes with even more than his usual punch. "It is all very well for the dilettante economists of wealthy universities, their tables groaning beneath a sufficiency of the good things of this world . . . to say, 'Food is cheap enough. . . . We have enough of plenty. Let us safeguard security.' It is for the millions, to whom a slice of bacon more or less . . . still matters, to make the decision. It is not so certain that if the issue were clearly and honestly explained to them, they would choose the maintenance of existing capital values. For as yet the issue has not been put either honestly or clearly." But is it putting the issue fairly or clearly to represent all attempts at mitigating the rigours of industrial transition as conceived in the interests of existing *capital*? Are they not often also conceived (whether well or ill) in the interests of *employment*? Is it so certain that the consumer, who (unless we confess to a special tenderness for the rentier or for the dilettante don just so dexterously debunked) is also for the most part the labourer, will ever as a class endorse the nineteenth-century social accountancy by which slight gains of comfort to the many were held to outweigh total loss of livelihood to the few? That, acting as an individual, he snatches with avidity at the slight gains, proves nothing: for by failing to do so he could no whit diminish the chance that he will himself be the next victim of the arrow of industrial change. It is comparatively easy to show, as Professor Robbins has certainly done, that many actual attempts at "planning" have failed to achieve the stability at which they aimed: it is less easy to prove, as he also attempts to do, that the whole notion of stability and progress as in some measure alternatives is a chimera, and that the maximum of *both* is to be attained under a system of individual enterprise, unhampered and unbuttressed by State intervention, yet rigidly debarred by central banking control from indulging in those escapades of inflationary capital-creation which have seemed to some observers to have been in the past among its most effective, if also its most callous, methods of adding to the world's material wealth.

Thus one lays down the book with the feeling that if the world is less simple than it seems to our high-hearted Planners of the Right and Left, it is also less simple than it seems to Professor Robbins and his friends. But one's chief emotion is gratitude that so forcible and eloquent an exposition of a case which is often gravely mishandled by its adherents is now available for the candid consideration of all the dilettante dons and prancing politicians, all the greedy entrepreneurs and purblind Labour leaders, against whom Professor Robbins has launched such an exhilarating covey of thunderbolts.

D. H. ROBERTSON.

The Depreciation of Capital, analytically considered. By R. F. FOWLER. P. S. King & Son Ltd., London, 1934. xii + 143 pp. 6s.

The literature on depreciation and valuation of capital is rather extensive; it is, however, very unsatisfactory. This is easily understood

when one considers that nearly all the writers on this subject have lacked the most indispensable tool for their analysis: that is, a theory of capital. They have been concerned with the problem of the depreciation of capital only as a technical matter of accountancy or as a disputed item in rate regulation in public utilities. Accountants on the one side, and public-utility controllers on the other, have constituted the chief class of writers on this subject of depreciation. The occasional utterances of economists have been confined to the question as to whether or not a specific intervention of some "public utilitarians" was "fair" to the shareholders and "fair" to the consumers.

There is now Mr. Fowler's book on "The Depreciation of Capital"; this is an analysis which has been constructed on a strong and sound foundation. Mr. Fowler has at his command a profound grasp of capital theory, which enables him to analyse the depreciation problem in a thoroughgoing manner. He knows, what others have hardly realised, that depreciation of old investments is not an element of (short run) cost estimates (p. 4); that depreciation as a factor of financial valuation of a firm is not identical with depreciation as a procedure of building up replacement funds; that (even under stationary equilibrium) depreciation quotas of one instrument are renewal quotas for another (p. 32); that "realised depreciation" (by a loss in efficiency) is to be distinguished from "accrued depreciation" (by a loss in life expectancy) (p. 86) etc., etc.

Some passages of the book might be hard reading for the untrained economist. Like all books which require the serious mental efforts of the careful reader, it will invite the criticism of being too abstract and of being based upon too many unreal assumptions; Mr. Fowler meets this objection in advance when he states that at least as many assumptions have to be made in real life, namely in actual accounting procedure. Only one factor of depreciation is accurately known, that is the original cost of the equipment. All other factors—length of life, future scrap value, future prices, future interest rates and what not—are estimates, guesses and assumptions of the technicians and practical accountants (p. 8).

Among the causes of capital depreciation there is only one—gradual wear and tear—which operates under stationary as well as under dynamic conditions. The other causes—changes in demand, in technique and in the rate of interest—are dynamic changes only. It is shown, however, that it is not their dynamic character which distinguishes them from the mere technical wear and tear; so far as they are foreseen, they are in principle of the same nature as depreciation in the narrower sense of the word (p. 12). (The footnote to these remarks and to those about the usual underestimation of the risk of obsolescence should have included a reference to Professor Knight.) It may be noted that there is a further cause of capital depreciation which has not been enumerated by Mr. Fowler, namely changes in complementary costs. This is, incidentally, the most important cause of the vast fall in capital values at the present time.

The relation between the rate of capital disinvestment and the rate of capital investment (or reinvestment) is the central problem of Mr. Fowler's analysis. He naturally starts with the arguments of the well-known chapter by Professor Pigou on "Maintaining Capital Intact." The changes in Professor Pigou's opinion from a value-maintenance (in the third edition of the *Economics of Welfare*) to a mere physical maintenance of capital (in the fourth edition) are most conspicuous. On this question Mr. Fowler's comments are to the point, though they do not offer a comprehensive solution of all these difficult problems.

The terminology used by Mr. Fowler is not the customary one. He includes in the term "savings" the replacement funds available for reinvestment (p. 27); the stationary state, which shows "no savings" in the customary use of the word, shows "constant savings" in Mr. Fowler's sense. The term "amount of investment of capital" as distinct from the term "amount of capital invested," though suggested by Jevons, is likely to be misunderstood. (As a matter of fact, it has been misunderstood all too often.) But we have frankly to admit that we have not as yet found clear and expressive terms which distinguish the amount of capital invested (the inventory *at* a point of time) from the amount of capital being currently invested (investing *within* a period of time) and both from the amount and time-dimension of investment of capital (invested and investing *for* a period of time). The time-dimensions may be left apart if one deals with the investments only in terms of cost, and not in terms of value. But, in spite of the doubts which Professor Knight expressed in a recent article in this journal (*ECONOMICA*, August 1934), the time-structure of capital is an indispensable notion if the correlative problems of future income and future disinvestment come into the picture. This is fully seen by Mr. Fowler, though perhaps it is not made quite clear enough for non-students of capital theory.

The analysis of the conditions of a stationary state, where disinvestment equals reinvestment, is of great importance. The time which is taken until such state of equilibrium is reached after additional investments have been made is found to be dependent on the ratio between the period of construction of the durable instruments and their durability (p. 38). There must also be a minimum number of durable goods in existence if equilibrium of investing and disinvesting is to prevail, and if the period of construction and the period of consumption are not equal. "The construction of a new machine must be commenced at least as frequently as the beginning of every period which is the Highest Common Factor of the periods of construction and consumption" (p. 37). From both statements Mr. Fowler derives a scheme of the annual increments of capital (new savings) which are necessary if the equilibrium is to be reached without wasting some part of the capital invested.

Very interesting and, as far as I know, entirely original thoughts are presented upon the relation between the durability of instruments, the rate of interest, and the average period of investment. What is the

influence upon the interest rate and the investment period of technical innovations which brings about a lengthening of the life of capital equipment at unchanged costs? Mr. Fowler answers that the introduction of a method "which lengthens the life of certain equipment will necessitate a rearrangement of production elsewhere, so that the average period of production and construction (*recte*: construction and consumption) remains the same" (p. 64). This is true. It still remains to make clear the mechanism through which this rearrangement is forced to come about. Such an exposition is suggested but not sufficiently treated by Mr. Fowler. The reverse relation between interest rate and durability has long been well known. The lengthening of the investment period as a result of lower interest rates does not necessarily—and in fact does very seldom—take place in the form of an increase in the durability of the instruments (p. 63). To make more durable goods is one thing, to make goods more durable is another.

A short survey of the depreciation practices provided by public utility regulators, especially by the Inter-state Commerce Commission in U.S.A., shows the confusion which has prevailed in the valuation problem. Even an economist as outstanding as the late Professor Allyn A. Young was misled by the old disputations. His argument "against deducting accrued depreciation from the valuation new" is elegantly criticised by Mr. Fowler. Mr. Fowler's argumentation (pp. 94-6) that the capital equipment of a plant—after the stationary state of constant renewals has been reached—is half worn-out and represents therefore only half of the amount of the investment seems inescapable. This result is very important indeed, because it proves that the capital investment of a firm which bought its total equipment at once is twice as much as that of a firm which bought its equipment gradually by using the replacement funds for the additional purchases. This entails consequences in the formation of the policy of individual firms concerning surplus and dividends, and concerning the structure of their financial organisation. Furthermore, it has some very interesting bearing upon the yield of the capital invested during the time of the growth and the time of small renewal costs as compared with the time after equilibrium has been reached (p. 103).

What Mr. Fowler has to say about the sinking-fund system versus the straight-line system of depreciation has a somewhat different emphasis from the arguments which are usually brought forward by writers on accounting. The remarks about the respective adequacy for stationary or dynamic conditions could perhaps be supplemented by some references to the suggestions of Professor J. B. Canning and others regarding the depreciation within periodical industrial fluctuations. But it is hardly fair to expect more exhaustive treatment in so short a book. It is indeed surprising how large a number of excellent ideas are presented in this modest volume, which will well repay careful study.

FRITZ MACHLUP, New York-Vienna.

The Social Survey of Merseyside. Edited by D. CARADOG JONES, the School of Social Sciences and Administration, University of Liverpool, with the assistance of J. E. McCrindell, H. J. H. Parker, C. T. Saunders. Secretary, N. L. Hume. Three Volumes. University Press of Liverpool and Hodder and Stoughton. 1934. xxii + 328, xvi + 413 and xviii + 560 pp. 45s. the set.

Liverpool can pride itself on an achievement in the realm of social investigation which falls into the very select category hitherto occupied only by the work of Charles Booth and the *New Survey of London Life and Labour*. The project was made possible by a generous grant from the Rockefeller Foundation; and it has been carried out by the School of Social Sciences and Administration of the University of Liverpool. The Director of the Survey, Mr. D. Caradog Jones and his collaborators, Messrs. J. E. McCrindell, H. J. H. Parker, C. T. Saunders, and N. L. Hume, the Secretary, are to be congratulated on a work which is not only an invaluable collection of social data but which also breaks new ground in methods of analysis.

It is no easy task to present the results of an investigation of this magnitude in such a way that the reader can see the wood as well as the trees. The three volumes under review fulfil this requirement admirably. The broad theme is unravelled logically, stage by stage, and the host of subsidiary inquiries, with the possible exception of a digression into the costs and price policies of public utilities, all serve their purpose as indispensable parts of a well-balanced whole. The first volume treats mainly of the Family and the incidence of Poverty and Overcrowding: the second takes us from the home to the work-place, and passes under review the industrial character of the area and the problems of unemployment and surplus labour: the third deals with those group activities not associated with earning a living, with minor themes on normal and sub-normal sections of the population, and a concluding chapter on Differential Fertility.

Merseyside comprises an area covered by the city of Liverpool, the boroughs of Bootle, Birkenhead and Wallasey, and two urban districts: its population increased from 224,000 in 1831 to 1,272,000 in 1931. The economic life of the region is dominated by the Port of Liverpool; no less than 63 per cent. of the insured population are employed in shipping, transport, commerce, distribution and various forms of personal and public service. In the four years before the world depression, 1924-8, Liverpool was responsible for 25.5 per cent. of the trade (in money value) of the United Kingdom compared with London's share of 31.3 per cent. In spite of this superficial resemblance, the conditions determining the prosperity of the two cities diverge in many important respects. Liverpool has as its hinterland a large section of the decaying Industrial North, whereas London is the natural outlet for the prosperous Industrial South. The Lancashire city finds it hard to rid itself of the accents of the "Manchester School"; it has good reason to deplore the new régime of trade restrictions which spells the doom of shipping and the

decline of exports. The metropolis, however, is well situated to reap the full benefits of the "Great Expectations" centred on a home market boom. Just because of these vital differences, it is of great importance to have alongside of the Survey of London an equally thorough examination of social conditions in one of our most vital industrial nerve-centres. But let no one think that the Merseyside Inquiry is just an application of the London Survey pattern to a smaller area. On the contrary it is an independent design. Much new ground has been covered, and the scientific study of social phenomena is enriched particularly by the elaborate treatment of, e.g. Differential Fertility, the Expenditure of Working-class Families, Occupational Mobility and Organised Religion.

A great deal of the information was obtained by means of a House Sample, which embraced 6,870 families. In order to analyse poverty "it is assumed that all the earnings of the family, together with any other available income, are pooled and that they are spent on the necessities of life. An estimate is then made of the least amount of money that would buy these essential commodities for the family in question." Where the joint income fails to reach this estimated amount, the family is regarded as below the "poverty line." 16 per cent. of the families were in poverty compared with 11 per cent. in East London. Moreover, it is a distressing fact that, in round figures, 2,000 out of 7,000 families failed to reach the "human needs" standard, as defined by Mr. Seebohm Rowntree, which represents just "the bare essentials of a civilised life."

For the inquiry into Overcrowding a "capacity standard" of accommodation is employed which deviates only slightly from Sir E. D. Simon's "Manchester Standard." One family in ten was shown to be living in overcrowded conditions. Poverty and overcrowding are generally found together where the bread-winner is unemployed or casually employed. Families where there is no earner seldom suffer from congested conditions; at the same time overcrowding but not poverty often afflicts a family with an adult male in employment. Over 70 per cent. of the overcrowded families were above the poverty line, and 56 per cent. could probably afford to spend more on rent.

Illuminating data on the expenditure of working-class families were assembled, and the results deserve careful attention. There is a surprising degree of similarity between the distribution of expenditure over different classes of food as revealed in this Sample and that shown by the researches of the Sumner Committee in 1914. It appears that the revolutionary changes since that date have hardly touched the habits of the average working-class family in regard to its food. On the basis of their analysis, the authors suggest that too much weight is given to food and too little to rent in the Ministry of Labour Retail Price Index.

It is satisfactory to note that a well-directed attempt has been made to meet the housing shortage in Liverpool. On an average 2,480 houses per annum were built between 1919 and 1931, and, if not architecturally distinguished, they are well planned in new suburban estates. Adequate reason is given for the belief that most of the overcrowded families above

the poverty line were among the applicants for new Corporation dwellings. But such migration to the suburbs costs a family at least ten shillings a week extra for rent, transport and food, and the size of the family is an important factor in the allotment of new houses. Consequently the evils of congestion are only very slowly yielding to this kind of treatment. Of the children under fourteen, one in four on Merseyside and one in three in East London are living in overcrowded conditions.

Volume II examines the various industries and services making up the structure of Merseyside. Unemployment Insurance figures are used to construct indices of Unemployment and of Industrial Attraction for each industry. A good case is made out for the use of such indices "in any attempt to preserve a proper balance between the supply of and the demand for labour of different occupational types." Reference must also be made to the admirable analysis of Occupational Mobility. "The social ladder seems to raise more than one man in four to a grade higher than that into which he was born, while more than one man in three falls to a lower grade than his father's." The analysis of Elementary and Secondary Education in the third volume is equally challenging. The proportion of children leaving elementary schools who entered secondary or junior technical schools was only 11 per cent. in 1927-30; the corresponding figure for England and Wales was 13.2 per cent. It was observed without exception that the better a child's record in the secondary school the higher would be the occupation grade in which he would find himself. Secondary education is a golden key which is put into the hands of only one in ten elementary-school pupils; but even then its possession by no means secures for him an "Open Sesame," for "once entry has been gained into a secondary school, the *exceptional* child of poor parents has as fair a chance as the *average* child of parents in a better position to make a good start in after life."

In several respects the Survey reveals a line of demarcation between the Roman Catholic population and other sections. For instance, in the Exchange district, the most Catholic and crowded, the birth-rate has hardly fallen at all in the last 25 years; the recent figures, expressed as two-year averages, are 33.5 per 1,000 in 1924-5 and 31.2 in 1930-1, whereas the corresponding rates for Liverpool were 23.5 and 21.6. The general Catholic birth-rate is falling with less rapidity than the average figure. It was found that manual workers constitute 84 per cent. of Roman Catholic congregations compared with 50 per cent. in the Anglican and Free Churches.

The Survey has many comments of value to make on the Public Health services. Emphasis is laid on the lack of continuity between the Child Welfare Service and the Health Insurance scheme. One cannot help feeling, however, that further development along "preventive medicine" lines will have to wait until more pressing problems have been solved. There is, for instance, the need for providing medical service for that unfortunate section of the community whose relief is to be administered by the Unemployment Assistance Board.

A review necessarily gives a most inadequate idea of the variety of subjects dealt with in these three volumes. Both in matter and style they reach a standard which it would be difficult to surpass. Is it too much to hope that other Universities will be inspired to undertake investigations of similar scope and quality?

BRINLEY THOMAS.

Wages in Eighteenth Century England. By ELIZABETH W. GILBOY. Harvard University Press and Humphrey Milford. 292 pp. 15s.

This study of eighteenth-century wages—wage-rates would be more accurate—is a notable reconnaissance of a difficult and little-explored field. Much work remains to be done before a definitive survey can be drawn, but Mrs. Gilboy has blazed a path, found many new sources, and has come out with credit as the pioneer.

She covers three areas: London and surroundings; the West, from Devon to Oxford; and the North, both Lancashire and Yorkshire. Her wage-rates refer, in the main, to the building crafts and labourers and to agricultural labourers. The main source for most of the work is the Quarter Session accounts. With the wage-rates she uses wheat prices to obtain a measure of the movement in real wages. An appendix of some forty pages of tables is supplemented by some forty charts.

London is sampled from the Abbey and the Quarter Session records at Southwark. From the Abbey it is shown that the wage-rate for labourers was fairly steady at 1s. 10d. a day to the middle 1730's, and from there on quite steady at 2s.; rates for craftsmen rose from 1700 to 1720, and remained steady at 3s. to 1780, when another new and higher level established itself. Stability is the main lesson from Southwark. From rates Mrs. Gilboy moves to real wages, and, aware of the difficulties, is content with simple indications: for the century she concludes that "the London working man more than managed to hold his own." In Surrey and Kent the higher London rates are shown to fade away by zones, though one may doubt the value of the Frensham figures, and the same conclusion of "holding their own" is suggested.

For the West, a more unfavourable lesson emerges from the mass of difficult figures: the level of real income, low and bad at the beginning of the century, is worse by the end. Mrs. Gilboy, standing with Malthus and Marshall in emphasising activities against wants as an economic urge, would here find part of the explanation for the failure of the West of England woollen industry to expand with the Yorkshire.

For the North, her statistics are much fuller and their meaning is unmistakable. The wage-rates move up for common labour from the 8d.-10d. prevailing to 1720, to 1s. by 1730, remain there until the 1750's, then rise steeply to a new level of 1s. 6d. for the 1770's, with an irregular rise starting in the 1780's. Craftsmen's rates, though not so easy of certain interpretation, show on higher levels the same general movements from the 1750's. With a side-thrust at the Hammonds,

Mrs. Gilboy concludes that "the lot of the northern labourer became continually more favourable." This northern section is very well done and of much interest.

So much for results: what of methods? In general Mrs. Gilboy uses the median for her average, and for this she quotes high authority. But it is open to doubt whether this single method has been used with complete discretion, for it has been applied "wherever three or more cases occurred in the year." Three seems a very low number on which to apply medians; and twenty-eight seems to be the highest figure of cases for any one year. The irregularity of records has caused the number of cases observed to fluctuate "enormously" by years and by regions. Because of this, one would like to have the observed cases given by, say, exponents to the median values. Students should consider carefully the indications given in the brief notes to the Tables. The objection is not entirely overruled by the obvious stability of rates demonstrated. On other points Mrs. Gilboy underlines some limitations herself, e.g. pages 45-6. Indeed, a useful supplement to the annual figures would have been a grouping of (say) the decennial observations, which, by reason of their greater number, might have permitted indications of how the quartiles behaved over the century, and in this way have shown how the scatter of wage-rates was affected by time.

Again, the importance of the possible and varying differences between rates charged up by contractors and rates actually received by the work-people has not been adequately discussed, despite remarks on page 17. A zone rather than a line would best represent the facts for, with contracting, the recorded rates have fringes of uncertainty.

But it would be ungracious to end on a critical note, and one may be asking for the impossible. Mrs. Gilboy has given us the best study of eighteenth-century wage-rates that has yet been attempted, together with much incidental information.

H. A. SHANNON.

Inter-regional and International Trade. By BERTIL OHLIN. Harvard University Press and Oxford University Press. 1933. 617 pp. 26s. 6d.

I must confess to having found this book rather difficult to read. This is not because its statements are obscure or its explanations involved; rather it is the very obviousness of much that is said which causes the attention to flag. Apparently the author has spared himself (and his readers) no pains to make his statement complete, and to notice every possible way in which "everything depends on everything else." One wonders whether it might not be better to confine general works to the provision of the theoretical clues required in economic analysis, and to trace out the full interrelations of the facts in studies of particular problems. But this is no more than a question of convenience, and we are not in a position to dictate the form in which a writer makes his contributions. That this work does make contributions of first importance is,

I think, indisputable. In certain directions it throws new light on old problems, and even more it opens up new lines of investigation, beginning where other books on international trade finish.

The work is divided into five parts, with not very informative headings. I fancy a division into three parts might have given a clearer arrangement. Parts I and II ("Inter-regional Trade Simplified" and "International Trade Simplified") deal with inter-regional trade on the assumptions that no costs are involved in the movement of commodities, and that the factors of production are mobile within each region but have no mobility between regions. In Part II certain simplifications of Part I are dispensed with, but its special relevance to international trade is hardly sufficiently marked to justify the distinction in the titles. Parts III and IV study the effects of transport costs and other hindrances to the movements of commodities, and also the possibilities of factor movements within and between regions. Here the relations between commodity movements and factor movements are considered, and the scope of the work broadens for a while into a general theory of localisation. As between Parts III and IV the distinction between inter-regional relations in general and international relations in particular is observed, but this leads to a good deal of repetition in Part IV. An exclusive treatment of international trade might, I suggest, have been reserved for the last Part, which deals with the maintenance of balance of payments equilibrium in the face of trade variations and capital movements.

I shall confine myself to noticing the author's treatment of two main topics: (a) the rationale of inter-regional trade and its relation to the distribution of productive factors, (b) the maintenance of balance of payments equilibrium.

It has long been common ground that international (or, more generally, inter-regional) trade is based on the differences that would otherwise exist in the relative prices of commodities as between one region and another. The first step in Professor Ohlin's theory is to ascribe these differences in relative commodity prices to differences in the relative scarcity of the productive factors required to make the different commodities. Thus trade enables production to be adapted to the distribution of productive resources, so that things may be produced where the requisite factors are relatively abundant.

I think this has now become the accepted theory of international trade. Whether or not we still call the theory "the comparative cost theory" is merely a question of terms, but I think Professor Ohlin is right to emphasise the advantages of the theory he presents over that offered by Ricardo and J. S. Mill.

From the foregoing it would appear that inter-regional trade is an alternative to the redistribution of the productive factors, and that it has the same tendency to equalise factor prices. This relationship between commodity movements and factor movements is asserted by Professor Ohlin as a general rule, subject to a number of qualifications.

The most important qualification, perhaps, is that necessitated by the

case of "increasing returns." To take advantage of the economies of large-scale production, or in other words to avoid the waste otherwise entailed by the indivisibility of certain resources, is recognised by the author to be a second and independent *raison d'être* of trade. In practice this second cause may be said to strengthen the first. But it is likely to cause specialisation to be carried farther than would be justifiable on the basis of the inequalities of factor distribution alone; and it may have the effect of actually increasing the inter-regional discrepancies in certain important factor prices.

It remains true, however, despite this and other qualifications, that the things obtained by trade are obtained by the employment of resources less scarce than those which would be required to produce these things at home. So far as we are concerned with the alternative ways of obtaining the *same things*, therefore, the effect of trade in relieving factor scarcity remains unqualified. (This is a point which I think the author might have brought out more clearly.) It is when we extend our view to consider the effects of inter-regional trade as it actually develops, with its accompanying changes, both in incomes and in the kind and quantity of things produced, that the qualifications become serious. Professor Ohlin's very full discussion of the relations of trade and factor prices from this dynamic point of view really shows that no generalisation is possible.

Turning to the second main topic, Professor Ohlin agrees with the traditional theory to the extent that he finds the means of maintaining balance of payments equilibrium in adjustments in national income structures. Like Mr. Hawtrey, he emphasises the changes in demand which result from changes in incomes; but the effect on costs and supply prices is fully examined. He again follows the traditional view in expecting home trade prices to move with the general level of costs and incomes, although he also points out the extent to which these prices are influenced by the prices of import and export goods. With respect to the latter prices, however, he has some important emendations to make.

It is often assumed that, *ceteris paribus*, the price of a country's exports moves with the general level of its incomes (costs), and that therefore a changed relation of national income levels means a correspondingly changed relation of export and import prices. But, as Professor Ohlin points out, countries do not as a rule exchange products made from the same complex of factors. According to his general theory, each exports the products of its especially abundant factors. Now in certain circumstances the price of the special "export factors" may move in the opposite direction to the general level of factor prices, with the result that the export goods prices do not move with the general cost level.

The case for which this possibility is worked out most fully is that in which one country is receiving a unilateral payment from another, such as reparations. There is an expansion of incomes on one side, a contraction on the other. (It is conceded, let it be noted, that these changes in income may exceed the primary changes due to the payment itself—in

other words, that there may be changes in the level of incomes *earned* in each country.) These income changes will be accompanied by changes in the direction of the demands for goods and factors; and it is quite possible that the latter changes will be so unfavourable to the special export factors of the receiving country that, despite the higher price of the collaborating general factors, the supply price of its exports will fall relatively to that of its imports. Changes in the commodity terms of trade and changes in the relative heights of national income structures are not, then, the same thing. This seems to me one of the most important points in the book.

Another interesting point which may be mentioned is the demonstration that the mere existence of tariff obstacles, as distinct from increases in those obstacles, aggravates the difficulties (or, at all events, the amount of income adjustment) entailed in one-sided payments. This should be compared with the different view expressed by Dr. Haberler, but I think Professor Ohlin is right.

With regard to the monetary mechanism by which international price and income adjustments are brought about, Professor Ohlin is less revolutionary than I expected. He criticises the traditional theory for the emphasis which it lays on gold movements. But in his own alternative account of the process of adjustment, he does little more than replace changes in the gold holdings of the banking system by changes in foreign exchange holdings. Apparently he is not here referring exclusively to monetary systems in which liquid foreign assets count as part of legal cash reserves; and so far as other countries are concerned, I doubt whether the process which he describes has really operated. But in any case this modification of the usual account of the process is not a very fundamental one. So far as I can see it only makes an important difference in that it would lead one to take a less serious view of the *initial* difficulties in starting a flow of one-sided payments, such as reparations.

The point in which Professor Ohlin's theory strikes me as particularly conservative is its acceptance of the necessity of national changes in discount rates (and other credit terms) in the process of adjustment. This may be correct, but if so, it means that there is a very important difference between international income adjustments and those which take place between different parts of the same country; and this should have received more attention. As Professor Ohlin himself shows, there are other possible mechanisms. An increase in the foreign balances held by the joint stock banks may sometimes lead to an equivalent (*not a multiple*) increase in their own deposits without any change in discount rates, as in the famous Canadian case. Or a change in a country's foreign trade prospects may cause a spontaneous change in the volume of its internal credit circulation at the same rate of interest. As I have said, these possibilities are referred to. But no attempt is made to estimate their importance in the working of the gold standard system, and there is no discussion of their theoretical significance.

BARRETT WHALE.

The Changing Structure of American Banking. By R. W. GOLDSCHMIDT. Routledge. 1933. 12s. 6d.

This book comprises a competent examination of the great changes in American commercial banking in the post-war decade, an account of the development of the banking crisis, 1929-33, and a chapter of suggestions for reform. There is a preliminary chapter, outlining the entire American credit system, designed to adapt the book to the needs of those having no previous knowledge of that system. The chapter hardly attains its object, but a student who reads one of the elementary books on the Federal Reserve system and then reads this book will have covered much of the essential matter.

The most interesting part of the book is the examination of the changes in the composition of banks' assets and liabilities during the decade. The relative increase in time deposits the author ascribes partly to the growth of small savings deposits—savings which in earlier times were held in cash. (It is perhaps not generally realised that the twentieth century has seen a parallel secular change in English banking statistics.) But more important the author considers the change in methods of industrial financing. The great industries have met their requirements more and more by selling bonds and common stock, holding temporarily surplus funds often on time deposit. This has driven the banks into a changed distribution of assets. As industry has taken less in bank loans, more has gone to finance stock exchange and real estate (particularly urban real estate) speculation.

Another apparent paradox—the persistent failures of American banks throughout the boom period—is also satisfactorily explained.

Dr. Goldschmidt has on the whole—quite justifiably—left untouched problems of the Federal Reserve System. But there is one matter of the relations between the member banks and the Reserve Banks which he might profitably have discussed. This is the question of the reluctance of member banks to rediscount (mentioned, but not discussed, on page 16).

The chapter on reforms, while more penetrating than most such discussions, does not seem to me quite penetrating enough. The author appears to have been left untouched by the illuminating analysis of his earlier chapters. Many of the defects which American banks developed in the post-war decade had a common origin. The appetite of the public for bonds and common stocks of the great companies made those companies more independent of the banks. The latter, in the search for profits, were driven to the alternative sources of financing real estate and stock exchange booms—and also induced to establish security affiliates. The essential question is, therefore: Is the public appetite going to be similar in the future? If so, then Dr. Goldschmidt's suggestions are hardly radical enough. In any case, he should have helped us to answer the question.

But the book as it stands merits the attention of all who would understand the economic developments of the U.S.A. in the post-war decade. Indeed, the writing of many more such monographs as this must precede

any final judgments on the American boom, the post-war gold standard, and so forth.

R. S. SAYERS.

Enterprise Purpose and Profit. Essays on Industry. By D. H. MACGREGOR. Oxford University Press. 1934. 200 pp. 8s. 6d.

Enterprising readers who are prepared to stick at Professor D. H. Macgregor's volume of essays on industry until they have gleaned the last idea from its pages will not lack profit from their tenacity of purpose, for no more searching, though sympathetic examination of the case for rationalisation has yet appeared. The writing is brilliant but austere, and the carefully polished phrases are designed more to isolate truth than to spare or assist the reader, who may find his powers fully taxed on many a page. Statesmen in search of "a plan" will have no time for Professor Macgregor: but the civil servants who have to deal with statesmen should be more than grateful to him.

The collection contains four new essays, three of which are devoted mainly to one aspect or another of Rationalisation, while the other (No. 3, "Enterprise and the Trade Cycle") makes an important contribution to our knowledge of priorities in the movements of primary economic indices in the course of trade fluctuations. Professor Macgregor is here concerned to study the timing of variations in enterprise in relation to those of the two other primary, independent series, viz. prices and unemployment. As a measure of enterprise he employs the statistics of numbers of new joint stock companies on the register yearly down to 1913, and by working with seven-year moving averages he ascertains that the curve of enterprise tends to change direction before those of unemployment and of prices. His conclusion is "that enterprisers have got themselves out of depressions, rather than that they have been led out of them by actual price policies," and that "what we ought to do is to encourage enterprise in its own desire for recovery. It is not induced price changes which have done this in the experimental period here reviewed" (p. 85). He then enumerates three methods of encouraging enterprise, but he does not examine the probability of their inducing price changes themselves. This model essay concludes with a further analysis of enterprise from the negative evidence of statistics of company liquidations, the result of which justifies "the tentative conclusion of Aftalion that active trade was tending to include an unsettling factor in the creation of insolvency, and that this was among the factors of reversal" (p. 94).

The three new essays on rationalisation and the working of the competitive system will attract most attention. The key to Professor Macgregor's conclusion in all of them is contained in his observation (p. 119) that "the rationalisation movement in its pre-war origin, was better based on its well-known, and more recently sanctioned, list of future economies than on its reflections on the competitive order and risks." As he reminds us, the leaders of the trust and cartel movement of the

'nineties "presented to their critics lists of the economies of combined operation, and these lists of a generation ago have nothing added to them in recent arguments. . . . But they found it at that time not very easy to obtain assent for their list of economies, which is the proper ground on which to base the case for rationalisation; and so they reinforced themselves by applying strong terms to the competitive system, and had the support of Socialists in so doing" (pp. 116-17). The present author's *Industrial Combination*, written thirty years ago, remains the standard analysis of that movement, and he now admirably defends the competitive system against these ill-conceived attacks. In the fourth essay—"Risk of Enterprise"—he makes an ingenious use of laborious statistical analysis in inquiring "to what extent did the competitive, pre-rationalisation era mean that the conditions of industry deserved to be described, as they have been, as a chaos, or a welter, of independent producers, imposing such risks and losses as to condemn that era as unreasonable in its business structure"? He traces the lives of 737 operating companies floated in 1880, and finds that 40 or 50 per cent. of companies survived ten years, some 30 per cent. for twenty years, and 16 per cent. were still existing in 1929. His conclusions are confirmed by Mr. Shannon's more exhaustive survey of 2,100 companies formed over the period 1856-63. From a parallel analysis of the risk of insolvency, he finds that the ratio of insolvencies to the total number of companies in existence halved between 1884 and 1913, but since this ratio is affected by the survival of healthy businesses, it is checked by the ratio of the number of insolvencies to the size of the population, which declines from 1 per 5,500 in 1885 to 1 per 7,000 in 1913. "It is permissible to conclude that business risk was a declining burden, and that the decline was considerable. The competitive system could not be described as suffering from a *progressive* disorganisation or chaos or welter, or any such phrases." (p. 107). A computation follows of the actual losses involved; an average annual amount of £35 millions between 1893 and 1902, or 2.7 per cent. of the total average amount of the operating capital at risk (£1,285 millions). Adding an average real rate of 2.6 per cent. (Consols) for pure interest, the "economically necessary rate on company enterprise under the conditions was $5\frac{1}{4}$ per cent., with some addition for uncertainty." This of course does not necessarily correspond with the average rate actually earned, but when adjusted for changes between 1902 and 1913 it corresponds with the rate of 6 per cent. taken as normal by the Referee under the Excess Profits Duty Act. A further estimate is tentatively advanced that "all insolvency meant losses of some 1 per cent. of the national income . . . and an offset of accumulated loss which made new savings effective to the extent of five-sixths of their face value" (p. 118). There are obvious difficulties in attaching precise meaning to computations of social losses from insolvencies which are largely attributable to offsetting competitive gains.

The case for rationalisation cannot therefore be based upon the contention that competitive risks are increasing. In his second essay on "Sanctions of Rationalisation"—"the grounds on which changes may

be urged or imposed upon industry"—Professor Macgregor makes a valiant attempt to reduce to order the ideas which abound, and to assess the degree of public competence in various matters. The public's greatest degree of competence is in matters of policy; it has some competence in matters of administration, which is not completely specialised in any industry, and it has least competence of all in matters of technique, for "here public schemes are up against the authority of practice" (p. 46). Three sanctions are suggested by means of which "the authority of practice," i.e. the practical expert, can be made "self-critical or mutually critical . . . by industrial comparisons, by international comparisons, and by appeal to industrial leadership. The two first of these are the grounds of evidence for the last" (pp. 46-7). It is in the discussion of the method of operation of these sanctions that the argument appears to me to be obscure. "The larger the number of industries which have found rationalisation possible, the less probable the reply that in any particular industry there is an obstacle in technique." Agreed: but is there any presumption that what may be technically possible in each or every industry is economically appropriate in any one of them in particular circumstances? International comparisons are an uncertain guide; for as Professor Macgregor himself observes, they often cancel each other out, and particular countries (e.g. Germany and the British Dominions) begin to display strong desires to shed their rationalisation just when this country begins to regard them as worthy of imitation. It is well that the third sanction is added: "the range of rationalising plans can hardly have sanction without the endorsement of those who are of recognised authority in the administration and technique of an industry." So far so good: but when one reads that "the sanction is positive in that their consent should be enough, the other sanctions being supposed in force" (p. 51), the inadequacy of the three sanctions becomes alarmingly clear, for they would not by themselves prevent the wholesale imposition of Restrictionism upon an industry, excellent models being available in abundance in a variety of industries in many countries, and the acknowledged leaders of the industry undoubtedly being willing to vote with both hands for the curtailment of the output of the rank and file, whether actual or potential.

In fact, although Professor Macgregor proceeds to lay it down that "all that belongs to policy is to keep active the three kinds of appeal to practice which have been called sanctions" (p. 54), he himself is far from content with them, for in the next section he urges forcibly that in all rationalisation plans "a national policy has also to ensure that they continue to be what they were meant to be, and that the strength of their high organisation is not used so as to be restrictive on enterprise, especially on new enterprise. Hence the question of trade practice is an essential supplement of the study of modern planning or rationalisation" (p. 55). It becomes clear that monopoly is not among the desirable objectives for which Professor Macgregor desires rationalisation. "If there is to be an interested public attitude to the course of private enterprise, instead of, or in anticipation of, any of the forms of Socialism, it has to keep in view

three things—higher organisation, monopoly, and trade practice. By the use of trade practices, the first of these, which is intended, can pass into the second, which is not intended ” (p. 56). Trade practices are defined as “ methods adopted by private enterprisers to limit the access of other producers to the consumers, or of consumers to other producers ; or to create in the market local or temporary conditions of prices on which all business could not be profitably conducted ” (p. 57). It is pointed out that this country lags behind the United States and Germany in providing statutory supervision for the control of these practices. “ Suggestions to take supervisory powers have often been made, and they are much more relevant now that we are not discussing Trusts as a problem, but trying to get them formed, at least in some fundamental industries ” (p. 58). Professor Macgregor favours some sort of tribunal on trade practice which will deal specially with their economic aspects. It will have some pretty problems to decide, for he himself favours boycotts or restrictive agreements as part of schemes to eliminate “ excess of capacity,” and makes a distinction between “ right and wrong trade practice ” (p. 59), which is far from clear. “ A ‘ higher organisation ’ in an industry looks the same from the outside as a monopolistic construction ” (p. 58) and is apparently unable in all cases to carry on without the use of trade practices; yet it is clear from Professor Macgregor’s second essay that he would apply coercion to competing firms in an industry in order that a “ higher organisation ” might be forced into being. He does not however define it, or describe the precise conditions in which it should be created, or prescribe its functions. Professor Macgregor has in this important volume given his readers many other hard nuts to crack, but none of them were empty. Can he be induced to come back to this one in another essay, and to crack it himself ? It sounds more hollow than the rest.

ARNOLD PLANT.

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The Decrease of Fertility

By R. R. KUCZYNSKI

THE upper limit of fertility (actual production of children) is determined by fecundity (child-bearing capacity); it would be reached if all females, throughout their child-bearing period, cohabited with procreative males and did nothing to prevent conception nor to procure abortion. The lower limit of fertility is zero; it would be reached in a 100 per cent. successful general birth strike.

The most common method of measuring fertility consists in computing the birth rate; *i.e.* the yearly number of births per 1,000 inhabitants. What is the range of the birth rate? Many attempts have been made to estimate the upper limit. The first to try it was Sir William Petty in 1682. He assumed that of each 1,000 inhabitants 300 are females between 15 and 45 years and that every such female can bear a child once in two years. This would yield 150 births per 1,000 inhabitants. But in view of "sickness, young abortions, and natural barrenness" he reduces the possible rate to 125. Another estimate which often recurs in the German literature of the last sixty years runs as follows: Females, as a rule, are fecund for 22 years; women of that age period constitute 165 per 1,000 of the total population; of each 165 females 15 are barren. If the 150 fecund females bear a child each year, the birth rate would be 150.

Both these estimates arrive at exaggerated birth rates. They were made under the assumption that the proportion of women at child-bearing age would not be affected by an increase of fertility. But unless mortality changes, the proportion of women at child-bearing age is bound to decrease if fertility increases, because with increasing fertility the proportion of children increases. Let us assume that in England mortality remains what it was in 1933, but that from 1935 on, every female from 17 to 46 years would have a child every eighteen months. The birth rate in 1935 would jump to 149.¹ But the

¹ At present the 9,720,000 females from 17 to 46 years constitute 24 per cent. of the total population of 40,600,000. It might be expected perhaps that under our assumptions the birth rate in the first year would then rise to 160. But with 6,480,000 births the mean population in the first year would be 43,400,000.

proportion of children under 15 years, which is now 23 per cent. of the total population, would increase and would ultimately be 70 per cent., while the proportion of females between 15 and 50, which is now 28 per cent., would decrease and would ultimately be 14 per cent. only. At the same time the birth rate would drop from 149 to 83, and after that would remain on that level as long as fertility and mortality remained constant. If, then, we assume—a quite arbitrary assumption, of course—that the upper limit of fertility in England would be reached, if every female from 17 to 46 years had a child every eighteen months, the upper limit of the birth rate with present mortality would not exceed 83 in the long run.¹

Actual birth rates, of course, are lower than the upper limit because fecundity is nowhere realised to the full. I have never found a country with a birth rate exceeding 62 or 63. On the other hand, it has been very rare, so far, for the birth rate to fall below 10, as it did in France in 1916.

How has the birth rate developed in Western and Northern Europe?² It is generally believed that the birth rate was fairly constant until about 1876 and then began to decline. I do not quite share this view. The birth rate prior to 1815 showed frequent ups and downs; it apparently decreased in the 25 years following the Napoleonic wars; and after that it was fairly constant up to about 1886. From 1841 to 1880 the average quinquennial birth rate oscillated between 30.7 and 32.7; it amounted to 31.3 in 1881-1885. There was, to be sure, a decrease in the late 'seventies and early 'eighties, but this decrease was not greater than had occurred on numerous previous occasions. The decisive factor was that the decrease of the birth rate did not stop in the 'eighties but proved to be continuous. The average birth rate in 1911-1914 amounted only to 24.

The World War did not essentially change the trend of the

¹ The results of the detailed computations which I have carried out for the female population only are as follows: the birth rate (ratio of female births to female population) would jump in the first year to 140.8 and would ultimately be 82.0, while the death rate would decrease to 8.3 and then remain constant. The proportion of girls under 15 years which is now 21.8 per cent. of the total female population would ultimately be 68.5 per cent., while the proportion of women between 15 and 50 would drop from 53.1 to 29.8 per cent. and the proportion of women over 50 from 25.1 to 1.7 per cent. If we make the same assumption for fertility, but assume a considerably higher mortality, the birth rate would ultimately be 87.8 and the death rate 24.1; the proportion of the three age groups (0-14, 15-49, 50 and over) in the stable population would be 65.8, 31.9, and 2.3 per cent.

² Present territory of Belgium, Denmark, Great Britain and Northern Ireland, Irish Free State, France, Germany, Holland, Luxemburg, Norway, Sweden, Switzerland.

birth rate. During the war the birth rate was very low, being only 17 in 1915-1919. Immediately after the war the occurrence of many marriages which had been postponed caused the birth rate to rise temporarily. But even in 1920-1921 it was not quite 24, and by 1932-1933 it had fallen to 16. It is, then, only half of what it was from 1841 to 1885. Although the population of Western and Northern Europe has increased in the course of the last ninety years by almost 80 per cent., the absolute number of births is considerably lower than it was ninety years ago.

TABLE I
Birth Rate of Western and Northern Europe, 1841-1933

Years	Birth rate	Years	Birth rate	Years	Birth rate
1841-1845	31.8	1891-1895	29.7	1924	19.9
1846-1850	30.9	1896-1900	29.3	1925	19.8
1851-1855	30.7	1901-1905	28.4	1926	19.2
1856-1860	31.6	1906-1910	26.5	1927	18.2
1861-1865	32.0	1911-1914	24.1	1928	18.3
1866-1870	32.0	1915-1919	16.9	1929	17.7
1871-1875	32.6	1920	24.5	1930	17.7
1876-1880	32.7	1921	23.2	1931	16.8
1881-1885	31.3	1922	21.4	1932	16.3
1886-1890	30.1	1923	20.6	1933	15.6

But the drop of the birth rate was by no means confined to Western and Northern Europe. It occurred in North America, in Oceania, and finally also in Southern and Eastern Europe. With the exception of Russia, where natality, while being lower than before the World War, is still higher than it was in Western and Northern Europe fifty years ago, practically all countries inhabited by whites have by now passed the stage through which Western and Northern Europe went in the 1880's and 1890's. It is, moreover, noteworthy that in countries where the decrease of the birth rate started particularly late, the decrease was particularly rapid. While it took France over seventy years to experience a drop in her birth rate from 30 to 20, while this process lasted about forty years in Sweden and Switzerland and about thirty years in England and Denmark, in the last eight or ten years the birth rate fell in Bulgaria from 40 to 29, in Poland from 35 to 26, in Czechoslovakia from 27 to 19.¹ The birth rate of Bulgaria, which still

¹ In the Ukraine the birth rate dropped from 40 in 1927 to 30 in 1930; figures for more recent years are not available.

in 1924 was much higher than it ever was in England, was lower in 1933 than it ever was in England before 1900, and the 1933 birth rate of Italy was lower than the birth rate of England or Germany in any pre-war year.

TABLE 2

Birth Rates of European Countries, 1881-1885 and 1933

Countries	1881-1885	1933	Countries	1881-1885	1933
Belgium	30.9	16.5	Austria	32.9 ³	14.3
Denmark	32.4	17.3	Bulgaria	39.4 ⁴	29.0
England and Wales	33.5	14.4	Czechoslovakia	35.1 ⁶	19.2
Scotland	33.3	17.6	Finland	35.5	17.4
Ireland	23.9	19.3	Hungary	44.4 ⁷	21.5
France	25.0 ¹	16.3	Italy	38.0	23.7
Germany	36.8 ²	14.7	Rumania	42.2 ⁷	32.0
Holland	34.8	20.8	Russia (Europe)	50.7 ⁸	37.5 ⁹
Norway	31.0	14.9	Spain	36.4	27.7
Sweden	29.4	13.7	Yugoslavia	46.8 ¹⁰	32.8 ⁶
Switzerland	28.7	16.4			

But fertility has decreased even more than the fall of the birth rate indicates, since the proportion of women at child-bearing age has increased with the decrease in the number of children. In order to measure fertility, it is necessary indeed to take account of the sex and age composition of the population, and the best method of doing so is to compute the *gross reproduction rate* by adding the specific fertility rates (ratio of female births to female population) of the individual years of age. The sum thus obtained shows the average number of girls born to a woman who lives through child-bearing age.

What is the range of the gross reproduction rate? If we assume again that fecundity would be realised to the full if every female from 17 to 46 years had a child every eighteen months, the total number of children born to a woman passing through child-bearing age would be 20, and the gross reproduction rate (which comprises girls only) would be 9.8. In the seventeenth century the rate in French Canada may sometimes have been as high as 5 or 6. In the Ukraine, 1896-1897, it amounted

¹ Present territory ; pre-war territory 24.7.

² Present territory ; pre-war territory 37.0.

³ Present territory ; pre-war territory 38.3.

⁴ Pre-war territory 1888-1890 (corrected figure).

⁵ 1901-1905.

⁶ 1932.

⁷ Pre-war territory.

⁸ Pre-war territory (excl. Finland, Poland, and the Caucasus).

⁹ 1929.

¹⁰ Serbia.

TABLE 3. *Gross Reproduction Rates, 1871-1933*

Years	Denmark	France	Germany	Norway	Sweden	Austria	Bulgaria	Finland	Hungary	Ukraine	Australia	New Zealand	Years
1871-1875	...	...	...	2.221	2.147	...	...	2.388	...	...	...	...	1871-1875
1876	...	...	...	...	2.163	...	...	2.420	...	...	...	...	1876
1877	...	...	...	...	...	...	...	...	...	...	...	...	1877
1878-1880	...	...	...	...	...	...	...	...	...	...	...	...	1878-1880
1881-1884	2.220	...	...	2.202	2.081	...	...	2.363	...	...	...	...	1881-1884
1885	...	...	...	...	...	...	...	...	...	...	...	...	1885
1886-1888	...	...	...	...	...	...	...	2.400	...	...	...	...	1886-1888
1889-1890	2.140	...	...	...	2.049	...	...	...	...	...	...	...	1889-1890
1891	...	...	...	...	...	...	...	...	...	...	...	...	1891
1892	...	...	...	...	1.968	...	...	...	...	...	...	...	1892
1893-1894	...	1.447	...	...	...	...	...	2.278	...	...	...	...	1893-1894
1895	...	...	...	...	...	...	...	...	...	...	...	...	1895
1896-1897	...	...	...	...	...	2.485	...	...	3.65	...	...	...	1896-1897
1898	2.042	...	...	...	1.944	...	...	...	...	...	...	...	1898
1899	...	...	...	...	...	...	...	...	...	...	...	...	1899
1900	...	...	...	2.064	...	...	...	...	2.605	...	...	...	1900
1901	...	1.393	...	...	...	...	...	...	...	...	...	...	1901
1902-1903	1.954	...	...	...	1.881	2.393	3.242	2.140	2.477	...	1.677	1.541	1902-1903
1904-1905	...	1.310	...	...	...	...	...	...	...	...	...	...	1904-1905
1906-1907	...	...	...	...	1.799	2.266	3.155	...	...	...	...	...	1906-1907
1908-1909	1.851	...	...	...	...	...	...	...	...	...	...	...	1908-1909
1910	...	...	...	...	...	...	...	...	2.396	...	...	...	1910
1911	...	1.232	...	1.853	...	...	...	...	...	...	...	...	1911
1912	1.671	...	...	...	1.594	1.999	...	1.716	...	...	...	...	1912
1913	...	...	...	...	...	...	...	...	...	...	...	...	1913
1914-1915	...	...	...	...	...	...	...	...	...	...	...	...	1914-1915
1916-1919	...	0.766	...	...	1.414	...	...	...	1.829	...	1.517	1.445	1916-1919
1920	1.523	...	...	1.661	...	...	...	...	...	...	...	...	1920
1921	...	...	...	...	...	...	...	...	...	...	...	...	1921
1922	...	1.233	...	...	1.239	...	2.502	...	...	...	1.442	...	1922
1923	...	...	...	...	...	...	...	...	...	...	...	...	1923
1924	...	...	...	...	...	...	...	...	...	...	...	...	1924
1925	...	...	...	...	...	...	...	...	...	...	...	...	1925
1926	...	...	1.176	...	...	...	...	1.402	...	2.485	...	1.301	1926
1927	...	...	...	1.33	...	...	2.2171	...	...	...	...	...	1927
1928	...	...	...	1.22	...	...	...	...	...	2.24	...	...	1928
1929	...	...	...	...	0.992	0.969	1.90	...	...	1.98	...	...	1929
1930	...	...	...	...	...	...	...	...	...	...	...	...	1930
1931	...	...	...	...	0.900	...	...	...	1.338	...	...	1.179	1931
1932	...	...	...	...	...	0.865	...	...	...	...	...	...	1932
1933	1.04	1.00	0.80	...	0.83	0.80	1.8	1.1	1.17	...	1.068	1.077	1933

1 1926-1927.

Italics indicate that the distribution of births by age of mothers has been estimated.

TABLE 4. *Gross Reproduction Rates, 1921-1933*

Countries	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Denmark ...	1.326	1.213	1.384	1.120	1.086	1.062	0.992	1.166	0.961	0.963	...	...	1.04
England and Wales ...	1.176	1.233 ¹	1.176	...	...	1.146	0.992	0.994	...	0.930	0.899	0.845	...
France ...	...	...	...	...	...	...	...	...	1.096	...	...	...	1.00
Germany ...	...	...	...	...	1.116	...	...	...	0.971	...	0.862	...	0.80
Saxony ² ...	...	1.141 ¹	...	...	0.891	...	...	0.796	...	...	0.654	...	0.57
Sweden ...	1.413	1.280	1.221	1.169	1.121	1.069	1.013	1.001	0.936	0.945	0.900	...	0.83
Austria ...	...	...	...	...	...	...	...	0.969	...	...	0.865	...	0.80
Bulgaria ...	1.664 ⁴	...	2.502	...	...	...	2.217 ³	...	1.90	...	...	...	1.8
Czechoslovakia ...	...	...	...	...	...	...	...	...	...	...	...	...	1.1
Estonia ...	...	1.204	...	...	...	...	...	...	...	...	...	...	0.924
Finland ...	...	...	...	...	...	1.402	...	...	...	...	...	...	1.1
Hungary ...	1.829 ⁴	...	...	...	...	...	...	...	...	1.338	...	...	1.17
Italy ...	...	2.0	...	...	...	...	...	...	...	1.570	...	...	1.50
Latvia ...	...	...	...	...	...	...	...	...	1.061	...	...	...	1.01
Lithuania ...	...	...	...	...	...	...	...	1.850	...	...	...	...	1.65
Poland ⁵ ...	2.241	2.206	2.121	1.959	1.983	1.853	1.95	...	...	...	...	...	...
Portugal ...	...	...	...	...	...	...	...	...	...	1.868	...	...	1.82
European R.S.F.S.R. ⁶	...	...	...	...	...	...	...	...	...	...	...	...	...
Ukraine ...	...	...	...	...	...	...	2.72	...	2.4	...	...	...	...
Australia ⁷ ...	...	1.517 ⁸	...	...	2.61	...	2.485	2.24	1.98	...	...	...	...
New Zealand ⁷ ...	1.442	...	...	...	...	...	...	...	...	...	1.077	1.053	...

Italics indicate that the distribution of births by age of mothers has been estimated.

¹ 1920-1923.⁴ 1920-1921.⁶ European Russia proper (50 Provinces), 1896-1897: 3.44; 1911-1913: 3.0; Baltic Provinces alone, 1896-1897: 1.85; ⁸ 1920-1922.⁷ Excluding Aborigines.³ 1911-1914: 1.472; 1915-1919: 0.772.⁵ 1921-1926: Provinces of Poznań and Pomorze only.

to 3.65, and it is possible that fertility was or is just as high, say, in one of the South American republics for which there are no adequate statistics on which to base a final judgment. In Western and Northern Europe, fifty years ago, the gross reproduction rate was 2.1. By 1911-1914 it had fallen to 1.6. It dropped below unity in 1931 and was 0.9 in 1933. It has been below one in England and Austria since 1926, in Germany and Sweden since 1928, and in Estonia in 1933. It dropped below 0.6 in Saxony, 1933.

Wherever the gross reproduction rate is constantly below one, the population must die out even if every newly born girl reaches the age of fifty. Wherever the gross reproduction rate is constantly above one, the population will reproduce itself if a sufficient number of newly born girls passes through child-bearing age. The best method of ascertaining the net reproduction consists in multiplying the specific fertility rates (ratio of female births to female population) of the individual years of age by the numbers of females living at those ages according to the life table. The sum of these products is the *net reproduction rate*. It shows (on the basis of present fertility and mortality) the average number of girls born to a newly born girl, or, what amounts to the same, the average number of future mothers born to a mother of to-day.

The net reproduction rate, of course, must always be smaller than the gross reproduction rate. Both rates could only be equal, if all newly born girls reached child-bearing age and passed through child-bearing age. The proportion of such girls has increased considerably in the course of the last hundred years. In England, for instance, according to the mortality of 1838-1854, 697 out of 1,000 newly born girls reached the age of 15, and 473 the age of 50, while for 1933 the corresponding figures are 907 and 788.

What is the range of the net reproduction rate? The highest rate which I have found for any large country was for the Ukraine in 1896-1897. It amounted to 1.96 which means almost a doubling within a generation. In Western and Northern Europe it was 1.3 fifty years ago. In 1933 it was 0.76. It was below one in 1933 in all countries of Western and Northern Europe with the exception perhaps of Holland, in Austria, Czechoslovakia, Hungary, Finland, Estonia, Latvia, the United States, Australia, and New Zealand.

What would be the trend of the population in England if fertility and mortality remained what they were in 1933?

TABLE 5. *Net Reproduction Rates, 1871-1933*

Years	Denmark	France	Germany	Norway	Sweden	Austria	Bulgaria	Finland	Hungary	Ukraine	Australia	New Zealand	Years
1871-1880	...	...	...	1.571	1.454	...	...	...	...	...	...	...	1871-1880
1881-1884	...	...	1.448	1.513	1.455	...	...	1.485	...	...	...	...	1881-1884
1885-1890	1.463	...	...	...	...	...	...	...	...	...	...	...	1885-1890
1891-1894	...	...	...	...	...	...	...	...	...	...	...	...	1891-1894
1895	...	...	1.512	...	1.435	1.411	...	...	...	1.96	...	...	1895
1896-1897	1.509	...	...	...	...	...	...	...	...	...	...	...	1896-1897
1898-1899	...	...	...	...	...	...	...	...	...	...	...	...	1898-1899
1900	...	0.979	...	...	...	...	...	...	1.445	...	...	...	1900
1901	...	...	...	...	...	...	...	...	...	...	...	...	1901
1902-1903	1.524	...	1.480	1.556	1.429	1.428	1.86	1.433	...	...	...	...	1902-1903
1904-1905	...	...	...	...	...	...	...	...	...	...	...	...	1904-1905
1906-1907	...	...	...	...	...	1.410	1.760	...	...	...	...	...	1906-1907
1908-1910	1.486	...	...	...	...	...	...	...	...	...	...	...	1908-1910
1911-1912	...	0.930	...	...	...	...	...	...	...	...	...	...	1911-1912
1913	1.372	...	...	1.365	1.288	1.305	...	1.161	...	...	...	1.357	1913
1914-1915	...	...	...	...	...	...	...	...	...	...	...	...	1914-1915
1916-1919	1.228	...	...	...	...	...	...	...	...	...	...	...	1916-1919
1920	...	...	...	...	...	...	...	...	1.127	...	...	...	1920
1921	...	0.977	...	...	...	...	...	...	...	1.319	...	1.291	1921
1922	...	...	...	...	...	...	...	...	...	...	...	...	1922
1923	1.186	...	...	...	1.058	...	...	...	...	...	...	...	1923
1924	...	...	0.924	...	...	...	1.534	...	...	...	...	...	1924
1925	...	...	...	...	...	...	...	...	...	...	...	...	1925
1926	...	0.929	...	...	...	...	...	...	...	1.676	...	...	1926
1927	...	...	...	...	...	...	...	...	...	...	...	...	1927
1928	1.012	...	...	...	0.857	0.782	...	...	...	1.63	...	...	1928
1929	...	...	...	...	...	...	...	...	...	1.39	...	...	1929
1930	...	...	...	...	...	...	...	...	...	...	...	...	1930
1931	...	...	0.748	...	...	0.714	...	...	1.011	...	...	...	1931
1932	...	...	...	...	...	...	...	...	...	...	...	...	1932
1933	0.91	0.82	0.70	...	0.73	0.67	1.3	0.9	0.91	0.976	0.978	...	1933

Saxony, 1924-1926: 0.757; 1933: 0.5.

Estonia, 1922-1923: 0.877; 1933: 0.7.

Italy, 1931: 1.209; 1933: 1.18.

Latvia, 1929: 0.900; 1933: 0.87.

Provinces of Pomerania and Pomerania, 1921-1926: 1.506, 1.559, 1.523, 1.434, 1.467, 1.323; Poland, 1927: 1.3.

Portugal, 1930-1931: 1.334; 1933: 1.29.

European Russia (50 Provinces), 1896-1897: 1.65; Baltic Provinces alone, 1896-1897: 1.15; European

R.S.F.S.R., 1926-1928: 1.7.

Serbia, 1900-1901: 1.613.

Italics indicate that the distribution of births by age of mothers has been estimated.

1 1926-1927.

With a birth rate of 14.4 and a death rate of 12.3 the yearly rate of natural increase in 1933 was 2.1. If the net reproduction rate were 1, and if fertility and mortality remained constant, the population of England would ultimately have the age composition of a stationary population corresponding to the life table for 1933 with a birth rate and a death rate of 16.5 each and no natural increase. But the net reproduction rate in 1933 was 0.734. This means that if fertility and mortality remain constant the population will ultimately decrease by 26.6 per cent. within each generation or by 10.3 per 1,000 per year. The ultimate birth and death rates (derived from the age composition of the "stable" population) are 11.1 and 21.4 respectively. If, then, fertility and mortality should remain constant, the birth rate will decrease from 14.4 to 11.1 and the death rate will increase from 12.3 to 21.4.

The results thus obtained show the present and the ultimate condition of population growth and decrease. But they tell us very little about the changes due in the near future. Unfortunately there is no formula which might be used for computing the development till the population has become stable. This development can only be ascertained through a special computation based on fertility and mortality rates by age. Such a computation has been carried out recently for England by Dr. Enid Charles of the Department of Social Biology of the London School of Economics. It appears from this computation that if fertility and mortality remain what they were in 1933, the population, which at the beginning of 1935 was 40,563,000, would increase for eight or nine years more and at the beginning of 1944 would amount to 40,885,000. In the course of 1951 it would again have reached the level of 1 January, 1935. By the year 2000 it would be reduced to 29,270,000 or by 28 per cent. as compared with 1944. The birth and the death rate would be 11.1 and 21.4 respectively, that is to say, they would correspond to the birth and death rates of the stable population. It would thus take about fifty-five years from the beginning of the decrease until the stable population would be reached approximately, and the population in this period would decrease by only 28 per cent. But from then on the population would decrease by 26.6 per cent. every thirty years, which means a halving every sixty-eight years.

Conditions in England are fairly representative for those of Western and Northern Europe as a whole. With a birth rate of 15.6 and a death rate of 12.5 the yearly rate of natural

increase in 1933 was still 3.1. But the net reproduction rate was only 0.76. If fertility and mortality of Western and Northern Europe remain constant, the population, which at the beginning of 1935 was 192.3 million, would continue to increase for some time. But the maximum population of 196 or 197 million would be reached in the late 1940's, and by the end of this century the population would have dropped to about 150 million, that is to the level held forty years ago. From then on the population would decrease by nearly 1 per cent. each year.

But fertility and mortality may increase or decrease. What would be the effects of such changes? As to mortality it is rather easy to appraise the effects. In order to judge the situation correctly, one must realise first of all that in this connection only mortality of women till the end of the child-bearing period plays a rôle, since it is irrelevant for reproduction whether the women die immediately after the child-bearing period or whether they reach a much higher age. If then mortality of females under 50 years were to increase, reproduction would decrease still further. But there is no reason to expect such an increase of mortality. If, on the other hand, mortality of females under 50 years were to decrease still further, reproduction would increase. As a matter of fact, such further decrease of mortality is conceivable everywhere. In countries where out of 100 newly born girls only 70 reach the age of 15 years and only 50 the age of 50 years, there is even a wide margin for further reduction of mortality. But where 90 per cent. reach the age of 15 and 80 per cent. the age of 50, a numerically material reduction is no longer possible. Or to put it otherwise: the maximum number of years which the newly born girls might expect to live in the age of child-bearing is 35; where the average number is 20 years only, the margin for an increase is wide; where the average number is 30 years, the margin for increase is very slight. The average number actually is 30 years or more, for instance, in England, Germany, the Scandinavian countries, Australia, and New Zealand.¹ Mortality, then, is particularly low in the countries with the lowest reproduction rates. We have seen that in Western and Northern Europe with present fertility and mortality, 100 newly born girls in the course of their lives give birth to 76 girls. If none of the 100 girls died before having passed through child-bearing age

¹ In New Zealand, 1933, the average number was as high as 32.17; out of 100 newly born girls 95.6 reached the age of 15, and 86.3 the age of 50.

they would give birth to 90 girls. The effects which a reduction of mortality may have here upon net reproduction, then, are not very great. The same is true of the United States of America and Oceania. In countries where mortality is still high to-day, the limits for a reduction are not so narrow. But for the future net reproduction in the total territory comprised by Western civilisation, mortality will no longer play a decisive part, since an increase is not to be expected and since a numerically important decrease is no longer possible.

As to fertility for changes, of course, is much larger. The theoretical possibilities for an increase and a decrease are enormous. How could a decisive increase be produced? Most people believe that an increase of marriages would have a considerable effect, and they point to the recent experience of Germany where the number of marriages increased from 510,000 in 1932 to 631,000 in 1933, and to about 740,000 in 1934, and the number of births from 957,000 in 1933 to about 1,170,000 in 1934. But the vital statistician of the German Statistical Office, Friedrich Burgdörfer, has rightly called attention to the fact that the present high level of marriages cannot be maintained:

“The large increase of marriages can last, of course, only as long as so to say ‘the stock lasts.’ This stock of marriageable young people is, it is true, still extraordinarily large, firstly, because in the time of the preceding economic depression more than 300,000 marriages which normally were due before 1933 had been postponed and are only now being contracted, and secondly, because the marriageable age groups at present are still recruited from the large generations born before the war. But the stock of marriageable young people will shrink very considerably in the years following 1936 because at present the small generations born during the war are entering the marriageable age. The generations which now will become marriageable reach only 50 or 60 per cent. of the numerical strength of the young generations which now furnish the bulk of those who get married. Since also after the World War the number of births has decreased extraordinarily (to less than one million as against two million before the war), *the subsequent marriageable generations will not for a long time again reach the present strength.*”¹

¹ Friedrich Burgdörfer, “Zur Kritik der neuesten deutschen Bevölkerungsentwicklung,” *Deutsche Allgemeine Zeitung*, March 3rd, 1935.

One must distinguish indeed between the temporary and the permanent increase of births obtainable through an increase of marriages. The temporary increase may be enormous, but the permanent increase is limited not only by the number of females at marriageable age, but also by the proportion of girls who with present nuptiality never marry. The best method of ascertaining this proportion consists in computing a nuptiality table which is calculated in the same manner as a life table of the female population, the only difference being that the number of single females is substituted for the number of all females, and the number of first marriages for the number of deaths. Such a nuptiality table for England, 1930-1932, shows that out of 1,000 girls reaching marriageable age, 826 got married before having passed through child-bearing age, while 174 remained unmarried.

TABLE 6
Female Nuptiality Table of England, 1930-1932

Years of Age	Remaining Unmarried	Years of Age	Remaining Unmarried	Years of Age	Remaining Unmarried	Years of Age	Remaining Unmarried
16	1,000.0	25	532.3	34	233.6	43	186.9
17	997.9	26	464.8	35	224.5	44	184.6
18	988.5	27	408.2	36	216.8	45	182.5
19	962.5	28	362.1	37	210.6	46	180.5
20	919.0	29	325.7	38	205.2	47	178.8
21	859.9	30	297.0	39	200.0	48	177.1
22	776.2	31	275.0	40	196.3	49	175.6
23	693.1	32	258.3	41	192.8	50	174.2
24	610.4	33	244.4	42	189.7		

The gross reproduction rate of England, 1933, was 0.845. Of the 845 girls borne by 1,000 females passing through child-bearing age about 40 were illegitimate children. Since, according to the nuptiality table, 826 out of 1,000 females reaching the age of 50 years had married, the gross reproduction rate of women who married (once or more), if measured by legitimate

births only, was $\frac{0.805}{0.826} = 0.97$. If, however, we assume that

about one-half of the illegitimate girls were borne (either before, or during, or after marriage), by women who had married, the gross reproduction rate of married women would reach unity. If we further assume that the 174 girls who remained single had married at the same ages as those who did marry and had displayed the same fertility, the gross

reproduction rate for all females would have been 1. But the last assumption evidently leads to an overestimate of the effect of universal marriage upon the reproduction rate, since the proportion of sterile women is probably larger among those who remain single than among those who do marry.

An approach to universal marriage might have a stronger effect upon reproduction, for instance, in the Free State of Ireland and in Northern Ireland, where the proportion of girls who do not marry is much larger than in England. The effect probably would be less marked in Sweden where nuptiality, it is true, is low, but where the proportion of illegitimate children is very high.¹ It would be negligible in countries like France and Germany where nuptiality is high and the proportion of illegitimate children also is rather high. In such countries the number of births may increase temporarily if marriages are promoted, but marriages could not be kept permanently on a much higher level than heretofore, since anyway only a very small proportion of girls remained unmarried.²

If in Western and Northern Europe as a whole all girls who now remain unmarried married at the same ages as those who actually marry and displayed the same fertility, the gross reproduction rate would possibly reach unity. The result would then be the same as for England: with fertility as of 1933, the population would at best hold its own even if no newly born girl died before having passed through child-bearing age, and if none remained unmarried. Taking, however, account of mortality we would reach the conclusion: with present fertility and mortality the net reproduction rate neither of England nor of Western and Northern Europe as a whole would exceed 0.85 even if every girl got married.

No conceivable decrease of mortality or increase of nuptiality can thus prevent the dying out of the population of Western and Northern Europe. The only factor which may prevent it is an increase of matrimonial fertility. How can such an

¹ With an increase of marriages many children who under present conditions are born as illegitimate children of girls who remain unmarried would be born as legitimate children conceived before or after the wedding. To the extent that this would be so, the reproduction rate would not be increased at all by universal marriage. (For further details as to the gross and net reproduction rates of married women, see the author's forthcoming book *The Measurement of Population Growth*, London, 1935, chapters IV and VI.)

² The percentage of spinsters among the females of 40 to 49 years was 26.2 in Northern Ireland (1926), 25.3 in the Irish Free State (1926), 23.9 in Sweden (1931), 17.5 in England (1931), 11.4 in France (1926) and Germany (1925), 9.3 in the United States (1930).

increase be achieved? The main cause for the decrease of fertility is the spread of birth control in one form or another. If, as many people believe, birth control were practised extensively only within certain classes of the population, reproduction could not possibly be as low as it is. The very fact that with present fertility in Western and Northern Europe a married woman passing through child-bearing age bears, on an average, two children only, proves beyond any doubt that in the vast majority of the marriages birth control must be practised more or less successfully. A great and permanent rise of fertility, therefore, can be obtained only through a restriction of birth control. If this goal could be attained, reproduction would increase again, and the margin for such an increase is enormous. But it should be realised that with a net reproduction rate of 0.76, fertility would have to increase by over 30 per cent. in order to insure the maintenance of the population. With an increase of 20 per cent., this object would be reached only if mortality from birth to the end of the child-bearing period were to be halved.

While thus the future reduction of mortality cannot play a decisive part in determining reproduction, the situation is quite different in the case of fertility. The margin for a further decrease of fertility is enormous. The net reproduction rate of England sank in the decade 1923-1933 from 1 to 0.734. If it were to fall to 0.5 and then to remain constant, the population would decrease ultimately by 2.4 per cent. per year (or by 90 per cent. every hundred years). As matters stand, a gradual decrease of the net reproduction rate to 0.5 cannot be considered quite unlikely. The net reproduction rate of Saxony actually was 0.5 in 1933, and Saxony up to the World War had a greater fertility than England, and as late as 1924-1926 her net reproduction rate (0.757) was higher than that of England in 1933.

Fertility in the territory comprised by Western civilisation is so low because most couples want few children. Even if the desire of raising children should not further diminish, fertility, as a whole, is bound to decrease as long as the most efficient birth control devices are not universally known. We thus have the choice only between two policies: either make the raising of children more attractive, or adapt our economic and social structure to the needs of a decreasing population. Each of these policies involves a gigantic task which certainly will not become easier by delay.

Bacon Production and the Pig-cycle in Great Britain

By R. H. COASE and R. F. FOWLER

I

The Pig-cycle and the Reorganisation Commission

THE existence of a pig-cycle, in the sense of a self-perpetuating cycle of pig prices, has generally been assumed by writers on the economics of pig production, and as a result has excited some attention among theoretical economists as an example of the influence of the lack of foresight in causing disequilibrium.¹ In economic theory, this argument is generally known as the "cobweb theorem." If producers assume that present prices and costs will continue unchanged, and if there is a change in demand or supply conditions, then providing that the elasticities of demand and supply are of a certain order of magnitude, it can be shown that continuous fluctuations in prices and output will occur and that there will be no tendency for an equilibrium to be established. The condition which is necessary if this is to be true is that the demand curve should be less elastic than the supply curve over the relevant range.²

¹ See Kaldor: "Note on the Determinateness of Equilibrium," *Review of Economic Studies*, February 1934. Ricci, "Die synthetische Ökonomie von Henry Ludwell Moore": *Zeitschrift für Nationalökonomie*, 1930. Schultz: *Der Sinn der statistischen Nachfragekurven*. J. Tinbergen: "Bestimmung und Deutung von Angebotskurven, Ein Beispiel": *Zeitschrift für Nationalökonomie*, 1930, p. 669. Tinbergen uses as an example the pig-cycle of one-and-a-half years in Germany discussed by Hanau. ("Die Prognose der Schweinepreise": *Vjh. zur Konjunkturforschung*, 1927 and 1930.)

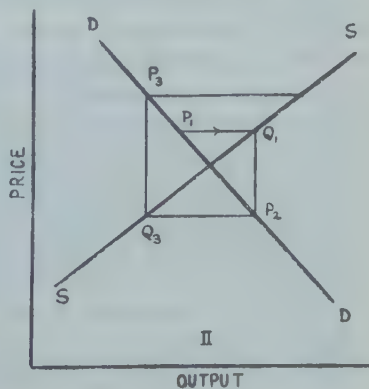
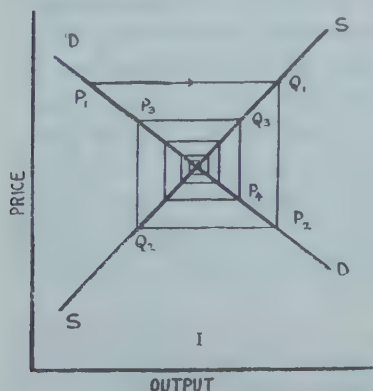
² If the elasticity of supply is less than the elasticity of demand, there will be a tendency for equilibrium to be established, even if no foresight is assumed. Various combinations can be obtained which result in continuous oscillations.

The following diagrams illustrate the two cases. Suppose that, for any reason, the price P_1 is above the average cost. If it is assumed that the price P_1 will remain unchanged in spite of an increase in output, production will be expanded to Q_1 . Price then falls to P_2 and production is contracted to Q_2 . In the first diagram the demand curve is more elastic than the supply curve and the equilibrium price is gradually

It seems probable that the demand for pig products is inelastic and that the supply is relatively elastic, which implies that it is possible for this argument to be applied to the British pig industry. In fact, it is essentially this argument (that of the "cobweb theorem") which is used in the Report of the Reorganisation Commission for Pigs and Pig Products to account for the existence of the pig-cycle. The Commission was concerned almost exclusively with the production of bacon-pigs, and it is bacon-pigs with which we are concerned in this paper.

According to the Report of the Reorganisation Commission, the pig-cycle lasts normally four years and "consists of a period of rising prices followed by an approximately equal period of falling prices." The cycle is said to be due not to changes in demand, but to changes in the supply of pigs. "The chief factor influencing the volume of supplies of pigs at any time is the anticipation of profit or loss from pig-raising by the mass of farmers. Although the decision to increase or decrease production does not affect the market supplies until many months later, owing to the time required for breeding and feeding, *most farmers appear to assume that the existing relation of pig prices and feeding costs will continue*—[our italics]. Thus, farmers take steps to increase or decrease production when food is cheap or dear relatively to pig prices. But the full results of such decisions are not felt until many months later, when there comes a change in the relation between feed costs and pig prices that has not been expected by the mass of

approached. In the second diagram the supply curve is more elastic than the demand curve and there is no tendency towards equilibrium.



farmers. The latter then begin to reverse their previous policy, and so the pig-cycle is perpetuated.

The influence of fluctuations in the pig price-cycle upon the profits of pig-keeping is enhanced by the influence of a cycle of feeding-stuffs prices, which tends to move inversely to the pig price-cycle, so that when pig prices are high, feed costs tend to be low and vice versa ; moreover, its fluctuations are as wide as those of the pig-price cycle. In consequence, the ratio of pig prices to feed prices varies considerably, which results in wide fluctuations in the subsequent production and prices of pigs. It has been demonstrated that a high or low ratio of pig prices to feed prices in the United Kingdom tends to be followed about twenty-one months later by correspondingly low or high pig prices."¹ There would be a pig-cycle irrespective of variations in costs, but since these costs do vary the pig-cycle is enhanced. The pig-cycle is described as being "in all countries . . . the curse of the industry," and it was one of the objects of the Boards set up as a result of the Report, to eliminate the pig-cycle. The object of this paper is to discover by an examination of the post-war experience of the British pig industry whether this argument is one which is really valid.

This argument would be true if farmers do, in fact, assume that the present relation between prices and costs will persist ; that is, if farmers do not attempt to make a forecast of future prices. Though the argument advanced by the Reorganisation Commission would apply irrespective of variations in the prices of feeding-stuffs, yet generally variations in these prices are said to give rise to a pig-cycle through their influence on the farmers' production policy.

Clearly, if costs never vary, the prices of pigs will not change, demand remaining the same. Let us now consider the effect of a fall in the costs of feeding-stuffs, which is thought to be of a long-run character, on the farmers' production policy, demand remaining the same. The immediate effect is to lower the cost of producing pigs for future consumption. If, therefore, the supply of pigs in the future remains constant and the price consequently remains the same, the profitability of pig production will increase. Farmers will find that it pays them

¹ *Report of the Reorganisation Commission for Pigs and Pig Products, 1932*, pp. 13-14. It should be noted that we interpret the statement that farmers assume "the existing relation of pig prices and feeding costs will continue," to mean that farmers assume existing prices and costs will continue—which appears to be what was meant.

to increase production when costs fall. The result of this is that the supply of pigs is greater and the price lower than in the previous period. Consumers will thus get the benefit of lower production costs. This need not involve a fall in profits to farmers below the normal amount, and in fact an increased output of pigs is necessary if their profits are to be stabilised. The Reorganisation Commission, on the contrary, was of the opinion that "the industry needs protection from fluctuations in output. The producer who regularly breeds or feeds a constant number of pigs needs to be protected against low prices caused by 'in-and-out' producers. Moreover, irregular production cannot be associated with regular prices, based on production costs, such as producers have shown a unanimous desire to obtain. For so long as the quantitative pig-cycle is permitted to influence bacon-pig production, for so long must prices continue to be low when all farmers have pigs to sell, and to be high when few farmers can take advantage of the high prices."¹

If it is possible to foresee changes in costs, and producers regularly breed a constant number of pigs each year, fluctuations in profits will be greater than they would otherwise be. If, however, farmers endeavour to reduce these fluctuations in profits they will take advantage of low costs to produce more pigs. Low prices are, therefore, a result of lowered costs, and farmers are not affected adversely. Whether there is monopoly or competition in the industry, it will be to the advantage of farmers to reduce fluctuations in profits by expanding production when costs are falling and contracting production when costs are rising.² The Reorganisation Commission has recognised this in recommending that pig prices should fluctuate according to the prices of feeding-stuffs.

Long-run Changes

Certain points involved in the expansion of production which is the result of a fall in costs should be noted. First, a fall in costs cannot affect prices through its effect on the supply of pigs until the pigs to which these costs are relevant come on to the market. Since the period of gestation is four months and the average age of baconers at slaughter is

¹ *Op. cit.*, p. 22.

² This may not be true in the case of a monopoly, if it is demand which has changed. See Joan Robinson, *Economics of Imperfect Competition*, p. 60 *et. seq.*

eight months,¹ there must inevitably be a time lag of not less than twelve months before the reaction of farmers to the changed price-cost relationship can bring about the required fall in the price of pigs.

Secondly, it is clear that the costs which determine the profitability of pig production are not those at any given point of time, but are an average of the costs incurred during the period of production of a pig, weighted according to the amounts consumed by the pigs during this period.

The important factor in determining the farmers' breeding policy is the relationship between the estimated future price and the estimated costs of feed-stuffs during the next twelve months. The conclusions reached by the Pig Commission would follow only if farmers assumed that prices and costs would remain unchanged. This would appear to be a most unreasonable assumption, since farmers could not fail to realise that prices and costs vary widely. Statistical investigation suggests that farmers do not in fact make this assumption.²

Another effect of this changed price-cost relationship should be noted. There are two possible ways of increasing the supply of pigs in the long run. If all breeding sows are farrowed as frequently as possible, taking into account the necessity for maintaining the quality of the product, then the future supplies can be increased only by diverting sows from slaughter to breeding.³ The immediate effect of this is to decrease the number of pigs coming on to the market, and, therefore, the price will rise.⁴ This will lead to greater profits on pigs sold at that time. These variations in profits are, however, inevitable, having regard to the technical conditions of production, that is, that more pigs can be produced in the future only by a diversion of sows from the slaughter market in the present.

The second method of increasing the future supply of pigs would be for farmers not to use their sows to capacity, but to

¹ The average age of porkers at slaughter is four months, and here the time lag would be eight months.

² See Section II below.

³ One minor effect of a change in these price-cost relationships is that it may pay to increase the life of a brood-sow, that is, continue to use it where previously it would have been discarded.

⁴ The price of pigs will remain above the previous level until the necessary number of sows has been diverted. Since a sow cannot be used for service before about six months, this diversion cannot take place immediately unless the necessary number is small. The rate of diversion will depend on the age composition of the pig population, and this varies between different countries.

keep a certain proportion barren, only bringing them to service when it was profitable to produce more pigs. Thus the production of pigs relative to the number of sows will be much less than was suggested above. This method is likely to be used to some extent, because once a sow has been used for breeding its value in the bacon market falls, and, therefore, it may pay to keep it for future breeding, even though it does not pay to bring it to service in the present. Therefore it seems probable that an increase in the supply of pigs will be brought about partly by a diversion of sows from slaughtering and partly by using brood-sows which previously have been kept barren.¹ In fact, there seems no doubt that there is considerable under-capacity in both sows and boars. This is important, since it implies that this short-run rise in price will tend not to take place.

Assuming that farmers are rational, the effect of a long-run change in the price-cost relationship may now be outlined. Let there be a fall in feeding-stuffs costs. Then there might be a tendency for pig prices to rise as a result of the diversion of sows from slaughter to breeding. In so far, however, as there is under-capacity this rise may be small or non-existent. As, however, the supply of pigs increases in the future as a result of lowered costs, the prices of pigs will fall. Variations in feeding-stuffs costs will thus cause rising and falling pig prices. It remains to be seen from the statistics whether or not this accounts for the pig-cycle. As noted above, certain other factors depending on the facility with which estimates can be made will cause fluctuations in prices and profits.

Short-run Changes

So far we have considered only what might be termed long-run adjustments. Certain short-run adjustments might also be made. It is obvious that even if pig farmers forecast, they will gradually become aware of a change of conditions—that is,

¹ The effect of increased breeding on boars has not been discussed. This diversion is impossible except at an early age, owing to the practice of castrating young male pigs not intended for breeding. This does not mean that it is impossible to increase the supply of pigs until a further ten months (the period necessary to produce a boar which can be used for breeding) because it seems certain that boars are not used to capacity. The fact that under-capacity in sows persists suggests that farmers may have regard to the possibility of changing breeding policy in the future. It has been suggested to us that there is little under-capacity in sows. The fact, however, that the number of sows as a proportion of the existing population and of the population after twelve months varies, suggests that this is incorrect.

forecasting does not imply that they know what will occur throughout the future. Given that they realise that conditions have changed, their reactions will depend on the length of time during which they think these new conditions will operate. It is important to realise that the effects will be different according to whether farmers consider the change in the price-cost relationship to be of a long- or short-run nature. This is due to certain technical factors concerning pig production which affect the elasticity of supply. As has previously been mentioned, the period of gestation is four months. It therefore follows that the supply of baconers cannot be *permanently* increased until a period of one year has elapsed. Any change in pig prices which is estimated to last less than twelve months can give rise only to short-run changes, as far as the production of bacon-pigs is concerned. Any change which is estimated to last more than twelve months can give rise either to short- and long-run or to short-run changes alone. It is possible, however, to increase the supply of baconers in the short-run in several ways. Firstly, it is possible to divert pigs destined for the pork market to the bacon-pig market. The average age of porkers at slaughter is four months, and therefore after about four months it is possible to increase the supply of bacon-pigs.

Secondly, it is possible to increase the supply of baconers for slaughter in the short-run by decreasing the average age at which bacon-pigs are killed. This would be profitable if prices were expected to fall in the very near future. If prices are expected to rise still further, however, it will be profitable to increase the average age.

Thirdly, an increased output of pigs for slaughter can be obtained by diverting sows from breeding to slaughter. Brood-sows are 13 to 14 per cent. of the total pig population. Sows are not normally used for breeding before eight months, and they are generally discarded after three to four years.¹ Therefore a considerable proportion of the total number of sows returned as brood-sows can be diverted to the bacon-pig market. It should be noted that brood-sows which have been used for breeding cannot in general be used for bacon or pork, but will be used for other pig products. The general effect of the diversion of sows will be to increase costs per pig produced in the next

¹ The life of a brood-sow varies. Many are discarded after four litters (i.e. at about $2\frac{1}{2}$ years) ; others are kept longer.

production period, since litters will tend to be smaller.¹ If there is on the average a surplus of brood-sows not being used for breeding, diversion can take place without decreasing the number of sows farrowing. The average age, however, will increase and costs per pig will rise.

Causes of Fluctuations in Profits

Up to now, the assumption has been that farmers are able to foresee these changes in prices and costs. But clearly certain changes will have to be estimated, and consequently fluctuations in profits may occur. First of all, the reaction of other pig producers, i.e. the elasticity of supply of the industry as a whole, will have to be estimated by each producer. Secondly, the future prices of feeding-stuffs must be estimated. The farmers would assume average seasonal fluctuations, and if the period of feeding included a new harvest year, they would have to assume an average price of feeding-stuffs for the new year. This would inevitably give rise to a production cycle in the sense of fluctuations in prices and profits, but since future movements are unpredictable, profits will be greater if farmers make the above assumptions than if any other assumptions are made. Thirdly, farmers will have to estimate changes in demand. The first and third of the above changes will give rise to variations in profit to the extent that farmers are unable to estimate these correctly and will obviously depend on the amount of market information available. The second reason is one which is inevitable until future weather conditions can be estimated correctly for a long period.

II

Statistical Technique

Let us now consider the actual experience of the British pig industry during the post-war period. Since 1920 there have been three complete pig-cycles, the peaks in bacon-pig prices occurring in 1922, 1926 and 1930.

The problem is essentially one of farmers' reactions to changes in the price-cost relationship. Statistical investigation of this problem in Great Britain is, however, hampered by the absence of much of the necessary data. Changes in the number

¹ See E. Z. Russell: *Age as a Factor in Brood-Sow Performance, 1921-1930*. United States Department of Agriculture, Bureau of Animal Industry.

of sows are available only annually. The number of sows served is not available, even annually.¹ With regard to the number of pigs slaughtered, the only information which can be obtained is an annual estimate for the years 1911-31, published in the Report of the Reorganisation Commission. Consequently no statistics exist of the average weight or age of pigs slaughtered. In the British statistics, no distinction is made between bacon- and pork-pigs.² The basic statistics are given in the Appendix.

Curve A in Figure 1 shows the monthly average prices of a 9-score (180 lb.) deadweight bacon-pig.³ Curve B shows the fluctuations in the total costs of feed-stuffs incurred for pigs sold in each month. The method generally employed in other investigations has been to take a ratio of the present prices of feed-stuffs to the present prices of pigs, and this ratio is known in the United States as the Corn-Hog Ratio.⁴ Since the important factor must be the profitability of pig production, this method is inadequate, and an endeavour has been made in this paper to calculate the average monthly profits per bacon-pig sold. In order to do this it has been necessary to calculate the cost (feed-stuffs only) of a bacon-pig sold each month. As feed-stuffs represent 75 to 95 per cent. of the total cost of production of a baconer and the other costs are not likely to fluctuate to an appreciable extent, variations in feed-stuffs costs give a fairly accurate idea of *variations* in the cost of pig production. This cost of production of a bacon-pig (Curve B) may be obtained by multiplying the average monthly price of a standard pig-feed ration during each of the preceding twelve

¹ An attempt has been made to obtain this index by using the number of services of premium boars in Great Britain. See J. Morgan Jones: "Factors affecting the price of Pigs in Wales." *Welsh Journal of Agriculture*, 1928.

Since the number of premium boars is not more than 4 or 5 per cent. of the total number of boars, this index cannot be considered to be at all reliable.

² Since only about 30 per cent. of home production consists of bacon-pigs, there may be considerable error in taking fluctuations in total supplies as being representative of fluctuations in bacon supplies. It is known that variations in the percentage of bacon-pigs to the total have occurred. This fact, plus the absence of any but annual statistics of slaughtering, makes impossible any analysis of pig farmers' short-run policy.

³ The average weight of a baconer for England and Wales was given as 184 lb. deadweight in the *Report of the Pork and Bacon Trades in England and Wales*, Economic Series No. 17, Ministry of Agriculture, p. 24.

⁴ See e.g. Oris V. Wells, *Farmers' Response to Price in the Production and Marketing of Hogs*, Technical Bulletin No. 359, U.S. Department of Agriculture; also K. A. H. Murray: "The Future Development of the Pig Industry in Great Britain," *Empire Journal of Experimental Agriculture*, Vol. I, No. 3, September 1933. A notable exception is to be found in the *Report on the Marketing of Pigs in England and Wales*, Economic Series No. 12, Ministry of Agriculture, p. 19.

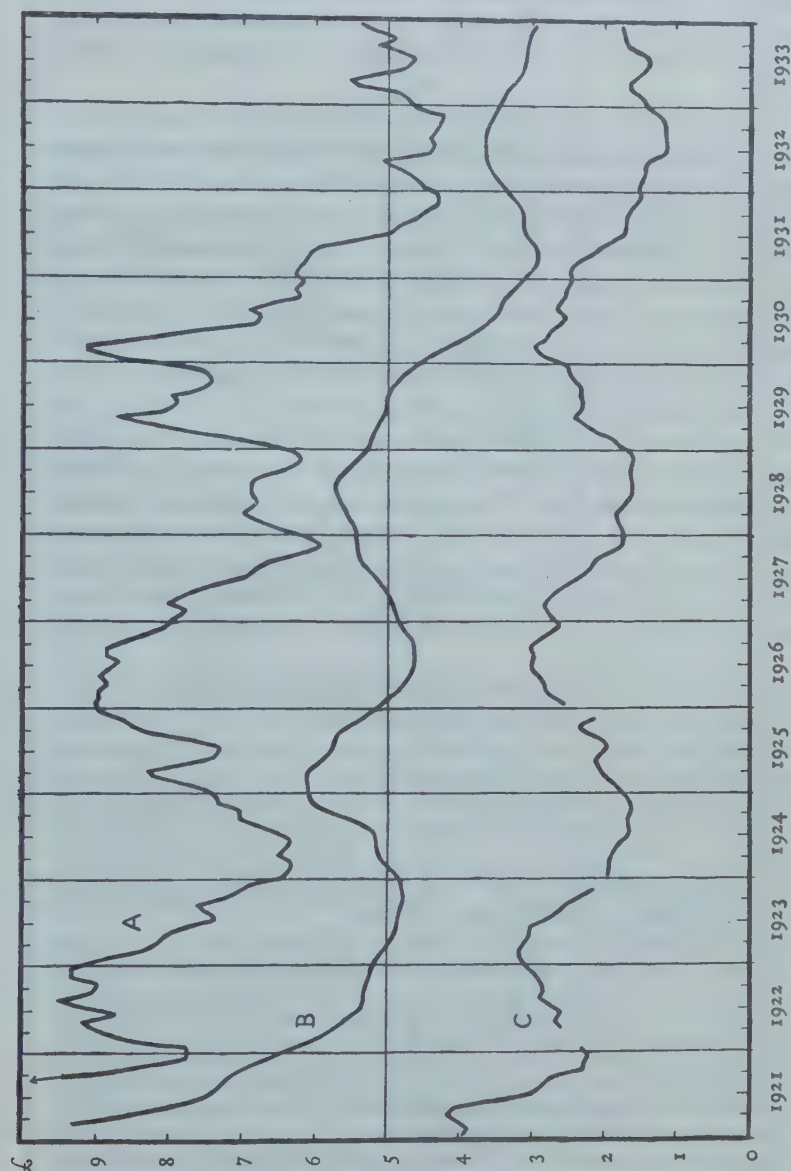


FIGURE 1

(A) Average Monthly Prices of a nine-score deadweight bacon-pig.
 (B) Total feed-stuffs cost of a bacon-pig sold in any month. (C) Average monthly price of three-months'-old store-pig.

months by the amounts consumed during each of these twelve months (including a proportionate charge during the period of gestation). The standard ration is one used by K. A. H. Murray and considered by him to be representative of the relative importance of these feed-stuffs in pig-feeding in this country.¹

The amounts of feed-stuffs consumed each month were obtained from information supplied by the Ministry of Agriculture.² Substitution of one feed-stuff for another as relative feed prices change has been ignored, but it is not likely that any material difference would be made. By subtracting this figure of costs for each month from the corresponding average monthly price of a 9-score bacon-pig an index of "profits" per pig was obtained. Although this will not give the actual profits received per pig, it will show fairly accurately *variations* in the profitability of pig production. It is shown in Figure 2, Curve A. This curve shows the "profits" per pig of those farmers who both breed and feed. However, in Great Britain, there is a tendency to specialisation as between breeding and feeding, and of the pigs sold in the more important markets, about two-fifths are store pigs, that is, pigs which are sold at about three months for fattening.³ This means that about two-thirds of the pigs sold at markets go through the hands

¹ K. A. H. Murray: "The Reorganisation Commission and Pig Prices," *The Farm Economist*, Vol. I, No. 1, January 1933. The ration consists of Barley Meal 55 per cent., Coarse Middlings 20 per cent., Maize Meal 15 per cent. and Oats 10 per cent. Prices were ex mill for 2-ton lots or more, given in the *Agricultural Statistics of England and Wales*, published annually. It should be noted that for this cost index to be correct, farmers have to buy continuously. It does appear, however, from personal inquiry, that farmers tend to increase their stocks of feeding-stuffs when they consider that the prices of feed-stuffs are exceptionally low. Therefore, it follows that profits will not fluctuate as much as our result suggests, while they will also tend to be higher. This merely confirms the conclusion reached in the text that farmers do not consider that present prices of pigs and feeding-stuffs will remain unchanged.

² See also *Pig-Keeping*, Bulletin No. 32, Ministry of Agriculture, pp. 22 and 23. Assuming that 100 pigs were raised, the amounts of feed-stuffs which would be required in each month from service to slaughter were calculated as follows: 0.446, 0.625, 0.804, 0.938, 2.12, 3.61, 2.27, 4.38, 6.58, 8.44, 10.00, 11.10 tons. It seems probable that the weight and, therefore, the age at which pigs are slaughtered has tended to decline throughout this period. As we took a nine-score pig to be representative of the country, this would mean that this weight may not be quite so representative throughout the period. Since, however, the prices of all bacon-pigs—whatever their weight—tend to move together, the effect of this on our results is probably negligible. Also, improvements in breeding and feeding during this period have probably reduced costs to some extent. It is not thought, however, that this will materially affect our results.

³ See *Agricultural Marketing Reports*, which give weekly information relating to 41 representative markets. It has been suggested to us that this information is not a good enough sample to give reliable results. These figures are, however, the only ones which are available.

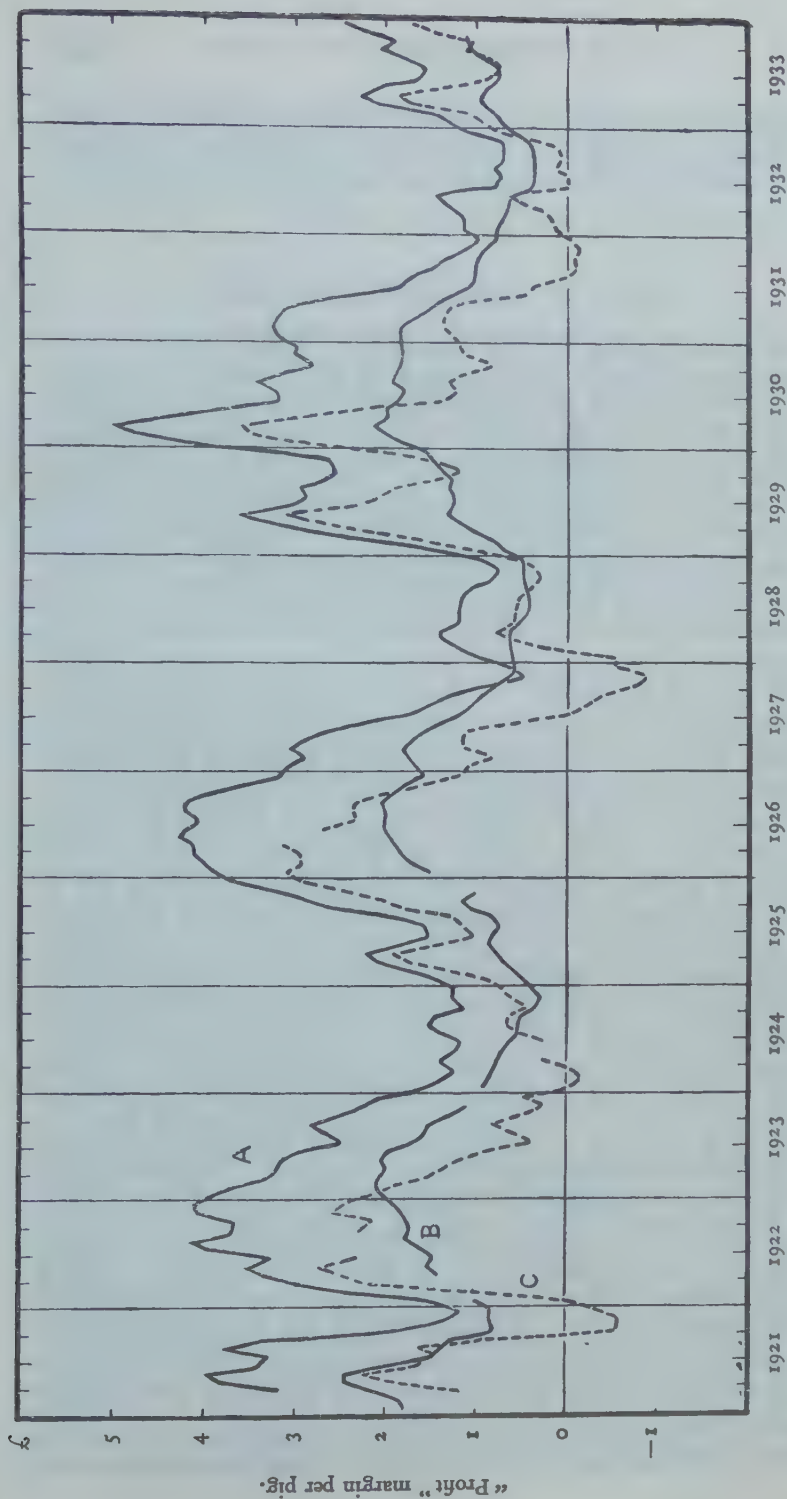


FIGURE 2

(A) "Profits" margin (receipts less costs of feed) per bacon-pig of farmers who breed and feed.

(B) "Profits" margin (receipts less cost of store-pig and costs of feed) per pig of breeders only. (C) "Profits" margin per pig of feeders only.

of breeders and feeders. Average monthly prices are given for store-pigs (Curve C, Figure 1), and therefore a "profits" index was obtained for breeders and feeders separately. These are also shown in Figure 2, Curves B and C.

Variations in Profits and Production Policy

Let us now consider the changes in breeding policy and production associated with changes in the "profits" curve of breeders. We have to inquire into the connection between rising, falling, and stationary "profits," and the subsequent pig population. Breeding policy in any one year can always be obtained by a consideration of the pig population in June of the next year. It is, of course, impossible in most cases to discover the exact months when breeding policy changes. There have been four periods of rising "profits" during the years considered, in 1922, 1925, 1929 and 1933. Have the reactions of breeders to these rising "profits" been the same in each case? In 1922, rising "profits" were accompanied by increased breeding, in 1925 by decreased breeding, and in 1929 by little change in breeding. In 1933, however, an increase in "profits" was followed by an increase in the pig population. The sharp fall in the "profits" margin in 1921 was accompanied by decreased breeding, but a similar fall in 1923 was associated with an increase. The continuation of this fall in 1924 was, however, associated with a decrease in breeding. The fall in "profits" in 1927 was followed by an increase in the pig population, while in 1931 a similar fall brought a very slight decline. There were two periods when the "profits" curve was more or less constant. In 1928, the "profit" margin remained fairly steady at a low level, while in 1930 it remained steady at a high level. In the first case this was followed by a decrease in the pig population, while in the second case it was followed by an increase. The low "profit" margin in 1932 was followed by a very small decrease in the pig population. It will thus be seen that the effects of changing "profits" vary considerably. In general, however, it can be said that when "profits" are above normal, there is a tendency for pig supplies to rise, and when they are below normal, there is a tendency for pig supplies to fall. Although the "profits" margin may be rising there need be no tendency to increased breeding, if farmers consider that the margin is below the normal level and that it is not likely to rise much above this

level in the future. A consideration of the trend of "profits" alone is not sufficient. This reaction of farmers is of course a necessary one if there is to be any tendency towards equilibrium in the industry.

The Commission's Assumption Examined

It is clear, however, that the forecasts of pig breeders are not accurate, and we have now to inquire why this is so. Let us first consider the explanation of this inability to prevent fluctuations in profits which is advanced by the Reorganisation Commission. The Commission argues that pig farmers assume that the existing prices of bacon-pigs and the prices of feed-stuffs will continue unchanged in the future. Whilst it is not possible to obtain any direct proof of this assumption in the case of breeders, it is quite possible to get this proof in the case of the feeders. Do feeders assume that costs and prices will not change?

Since the market for stores is a competitive one, it follows that the price of stores will vary in such a way as to render approximately constant the estimated profit per pig of feeders.¹ In other words, feeders will be willing to purchase stores so long as the price which they pay leaves them a profit which they consider to be a sufficient compensation. If the price of stores is below this amount, feeders will attempt to buy more stores and thus force up the price to this level. Let us suppose that the assumption of the Reorganisation Commission is a correct one, viz. that feeders consider that prices and costs in any month will remain constant for the next five months. (It is possible to calculate the costs of feeding store-pigs on this basis.) The price of store-pigs would then be so adjusted that the "profit" per pig, calculated in this way, would remain approximately constant. This "profit" margin is given by subtracting from the price of a bacon-pig in any month, the price of a store-pig in the same month, plus the costs of feeding for the next five months at the price of feed-stuffs in that month. This margin has been calculated and is shown in Figure 3, Curve A. It will be seen that, far from supporting the contention of the Reorganisation Commission, the curve shows wide fluctuations. That is, if feeders had assumed that existing prices and costs were going to remain constant in the

¹ If there is a general decline or rise of profits in alternative occupations, this may not be true, but changes which come about in this way are likely to be gradual in operation.

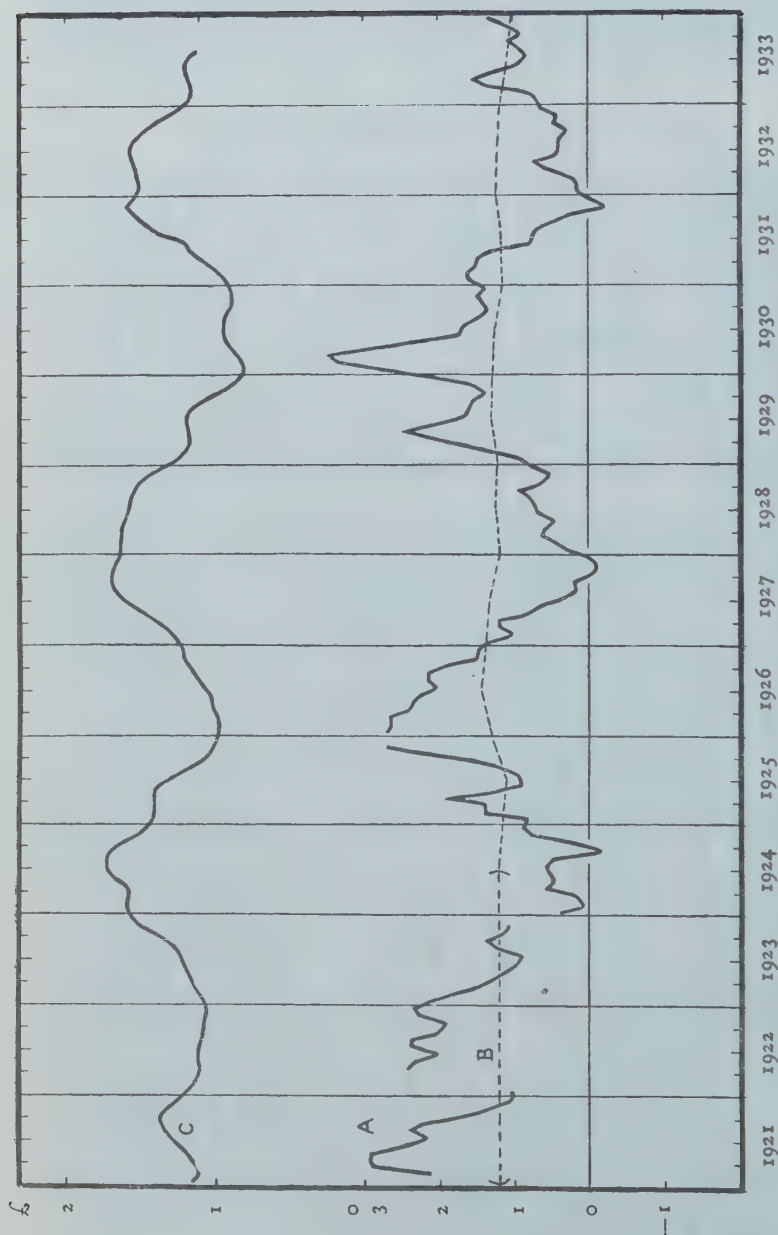


FIGURE 3

(A) Price of a bacon-pig in any month less price of store-pig in same month and costs of feeding for the next five months at price of feed in the first month.
 (B) Four-years' moving average of feeders' profits (from half-yearly averages).
 (C) Cost of one ton of composite feed-ration divided by price of a bacon-pig—five-months' moving average.

future, they would have bid up and down the price of store-pigs in such a way that the expected profit margin (Curve A) would be constant. The fact that the curve fluctuates proves that feeders did not assume that the present price-cost relationship would continue. This applies only to feeders, but there is surely no reason to suppose that the reactions of breeders are likely to be very different. It would appear, therefore, that any analysis of the British pig industry which makes this assumption is invalid.

The curve, however, which shows the "profits" of feeders if present costs and prices continued, can be used to test the way in which feeders forecast. If, assuming present prices and costs should continue, the "profits" were above normal, then the present price of store-pigs can only be due to the fact that it is thought that the relationship between costs and prices during the next five months is going to change in a way which is unfavourable to the feeder, and vice versa in the case where the "profits" calculated in this way are below normal. Although it is impossible to say exactly what are normal "profits" at any time, yet some indication of their level can be obtained by a consideration of a moving average of actual profits. A four-years' moving average of the profits of feeders calculated from the average profits for each half-year has, therefore, been constructed. This is shown in Figure 3, Curve B.¹ It will be assumed that when profits are above this level they are above normal. A five-months' moving average of the ratio of the cost of feeding-stuffs to the price of a bacon-pig is also shown, Curve C. This is obtained by dividing the price of a bacon-pig into the cost of one ton of the composite ration. When, therefore, this ratio increases, it means that conditions during the next five months become unfavourable to the feeders, and when it decreases conditions during the next five months become favourable to the feeders. An examination of these curves shows very clearly the reason for the wide fluctuations in the actual profits received by feeders. If feeders' forecasts are to be correct, when the profits' curve of Figure 3 is above normal, the feed-stuffs/bacon-pig price ratio should rise, and if this "profits" curve is below normal, this ratio should fall. Though this did occur in 1921, in the beginning of 1922, in 1926, 1928 and 1933, yet at other times, for instance in 1924, 1925, and 1927, 1929 and 1930, the movements were almost contrary. Of course, this result may

¹ An estimate for the years 1920-4 has been inserted.

be partly due to the incorrectness of the assumption that a four-years' moving average gives one normal profits. If changes in the profitability of alternative occupations are both considerable and last only a few years, then the level of profits in pig-feeding which can be considered normal at any time, that is, the rate which gives full equilibrium in which the anticipated situation is the same as the actual situation, may vary considerably. For instance, this level may well have been much higher in 1929 and 1930, and much lower in 1931, 1932 and 1933. The conditions in pig-feeding suggest that such variations in normal profits are likely to occur. Pig-feeders consist of people with alternative occupations, who can easily enter or leave pig-feeding. According to the Report on the Marketing of Pigs, "grain growers, potato growers and dairy farmers in many districts regard the feeding of store-pigs as a seasonal part of their farming operations and there is also the demand near large towns for forward stores for swill feeding. Further, some farmers, both small and large, always make a point of feeding pigs; they merely increase or decrease the number kept according to the prospects of the market" (p. 19). While it is not suggested that this is the only reason for the movements given above, it is probably one reason. Certainly, it is difficult to reconcile *continued* low or high profitability of pig-feeding with the ease of entering or leaving this occupation, having regard to the fact that the profitability of feeding is known in five months, unless this is so.

There are several interesting features of Figure 2. It will be noticed, firstly, that the fluctuations in the feeders' "profit" margin are considerably greater than those in the breeders' margin. This is not due to a difference in the length of the period for which forecasts have to be made, since the breeders have to look ahead for a period of seven months (four months' gestation and three months' feeding), while the feeders have to look ahead for a period of only five months. This fact, which is at first sight rather surprising, can be explained by a consideration of the factors influencing the profits of feeders. These are the price paid for stores, the costs of feed-stuffs and the price of bacon-pigs. It is clear that if store prices do not rise sufficiently in a period when bacon-pig prices are rising relatively to the cost of feed-stuffs or do not fall sufficiently when bacon-pig prices are falling relatively to feed-stuffs, then variations in the profits per pig of feeders will be greater than

they would otherwise be. This means that variations in feeders' profits are to a large extent determined by the price paid for stores. If store prices do not reflect accurately changes in the profitability of pig-feeding, there seems no reason to suppose that variations in feeders' profits should be less than variations in the profits of breeders. To this must be added the fact that a given change in the cost of the standard ration will have a greater effect on the "profit" margin of feeders than on that of breeders. This is due to the greater rate at which feed-stuffs are consumed by pigs as the age of the pig increases.

Secondly, we must consider the lag which occurs between the "profits" curves of feeders and breeders. It will be noticed that changes in the direction of the feeders' "profit" margin precede changes in the breeders' curve by about nine months on the average after 1921.¹ This can again be explained by the behaviour of store-pig prices. Assuming constant prices of feed-stuffs, if store-pig prices change at the same time as bacon-pig prices, then the "profits" margin of feeders will start to decline when the rate of increase of bacon-pig prices becomes less than the rate of increase of store-pig prices five months earlier. The converse is also true. Since this occurs at periods when peak prices are being approached, the feeders' profit margin will tend to fall some months before the price of bacon-pigs begins to fall.² But, in fact, the peaks in store-pig

¹ This probably explains the twenty-one months' lag between changes in the relationship of pig prices to feeding-stuffs prices and changes in the pig population which has been found by writers on the pig-cycle in Great Britain. See, for example, K. A. H. Murray, *The Pig Industry*, loc. cit., *The Report of the Reorganisation Commission*, p. 15. The fact that fluctuations in the pig population are due to changes in the breeders' policy and that their profits do not fluctuate with changes in the feeding-stuffs/bacon-pig price ratio seems to have been ignored by all writers on the pig industry. The profits of pig breeders lag nine months after the profits of feeders. As the prices of both store-pigs and feeding-stuffs fluctuate less absolutely than the price of bacon-pigs, the profits of feeders tend to fluctuate with the feeding-stuffs/bacon-pig price ratio. Therefore, the profits of breeders tend to fluctuate with a nine-months' lag after changes in the feeding-stuffs/bacon-pig price ratio. To have shown that farmers react immediately to changes in the profitability of pig-breeding is, however, a serious objection to the attempt to explain the pig-cycle by an appeal to the "cobweb theorem." For if farmers react immediately, then on the assumption of that theorem one would get a two-year not a four-year cycle. Of course, this assumes that the reactions of foreign producers are the same as those of British pig farmers. The Report of the Reorganisation Commission does make this assumption and the presumption must be that it is so. But it is an assumption which needs to be examined.

² This can quite easily be illustrated. Curve A represents the price of a bacon-pig and B the price of a store-pig. Time is measured along the X axis. If costs remain constant, variations in the difference between the bacon-pig price for any month minus the cost of a store-pig five months earlier will indicate variations in the actual profits per

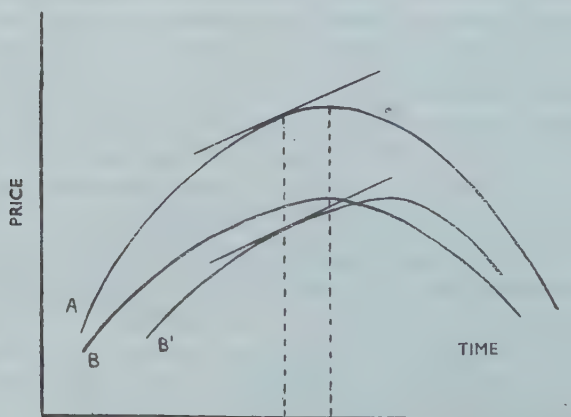
prices tend to come after the peaks in bacon-pig prices. This tends to accentuate the discrepancy. Without further information it seems difficult to assign a reason for this curious phenomenon, but of its existence there can be no doubt.

Other Causes of Fluctuations

Having shown that the assumption of the Reorganisation Commission is incorrect, and examined the nature of the fluctuations in the profits of pig farmers, we must next examine the factors which may contribute to the existence of these fluctuations in the profit margins. It will be remembered that in our first section we pointed out that farmers would have to estimate changes in demand, changes in costs, and also the elasticity of supply of the pig industry as a whole, that is, the response of other farmers to changes in prices. We have now to investigate the possibility that the fluctuations in profits are due to the difficulty of estimating these factors.

The first factor which must be considered is that of changes in demand. In 1924, there appears to have been a slight fall in demand, especially at the beginning of the year, and thereafter

pig received by feeders. Curves A and B in the diagram are drawn so that the vertical distance between them increases as they rise. Now shift curve B to the right by five months. The difference between this curve and A will give the profitability of feeding. Since curve B is still rising when curve A has reached the peak, it is clear that the maximum difference between A and B will occur to the left of the peak in curve A. If it were possible to forecast accurately this peak in curve A the price of store-pigs would begin to decline five months before the price of bacon-pigs, other things (including costs) remaining constant.



a fairly steady rise up to the beginning of 1930.¹ It seems very probable that there was a fall in demand after 1930 as incomes fell. Throughout the whole of this period, the trend of imports of foreign bacon was upward, while that of British production probably remained constant. In considering these movements, it is important to realise that imports of foreign bacon, of which Danish bacon is the most important, account for nearly 85 per cent. of total consumption. Therefore, even though it is true that English and foreign bacon are not complete substitutes, yet it seems probable if one is to judge from price changes, that the supply of foreign bacon is the most important factor influencing price from the supply side.² During the greater part of this period we had in the pig industry a state in which both supply and demand were increasing. This increase in demand was satisfied almost entirely by increased imports of foreign bacon. The fact that demand fluctuates increases the probability that there will be fluctuations in the profits of pig breeders. For instance, in 1924, not only was there an increase in the supply of British pigs, but there was also probably a decrease in demand, while the fall in profits in 1931 was due not only to the increase in the supply of Danish bacon, but also to the fall in demand at that time. Again, in 1925 not only was there a fall in supply, but also a

¹ Changes in demand were obtained from a study of the volume and value of imports of foreign bacon. If the same quantity of bacon was sold at a higher price, or a greater quantity was sold at the same or a higher price, it was assumed that this implied an increase in the demand for bacon. Half-yearly figures were collected and this method applied. Two assumptions on which this analysis is based should be noted. The first assumption was that British and foreign bacon are fairly competitive, so that the results obtained from a study of the foreign figures can be applied to the demand for British bacon. If the demand for foreign bacon changed, it was assumed that this implied a change in the same direction in the demand for British bacon. It was assumed, secondly, that variations in the British supply of bacon have a negligible effect on the price of foreign bacon. If we have regard to the fact that British and foreign bacon are not perfect substitutes, and that British bacon production is only about 15 per cent. of the total British consumption of bacon, this would appear to be a reasonable assumption. It does not appear, however, that if some allowance were made for variations in the British supply any modification of the statement in the text would be needed. The increase in demand up to 1930 was not, however, continuous, as there appears to have been a slight fall in demand in the first half of 1926 and probably a rather greater fall in the first half of 1927.

² There seems to be some doubt as to whether English and foreign bacon are competitive products. The Report of the Reorganisation Commission seems at one point (p. 13) to suggest that they are not: but the policy of quotas advocated by the Commission undoubtedly assumes that they are. Miss Ruth Cohen suggests ("Agricultural Reorganisation and Price Control," *Economic Journal*, September 1934), that at that time British and Danish bacon were to a large extent non-competing. Though this may have been so at that date, yet the close correlation of British and Danish prices does suggest that over most of the period they were competitive.

rise in demand. It appears, however, that in the first half of 1926 the effect of the decline in supplies was offset to some extent by a slight fall in demand. It should be noted, however, that the long-run trend of profits shows no definite movement. Therefore, there is no problem as far as long-run changes in demand are concerned. An increased demand induces the necessary change in supply, so that little movement is shown in the trend of profits. The pig-cycle may well be due to a large extent to the inability of foreign and British pig producers taken together to estimate in the short run the rate of change of these long-run movements. It is not true, as the argument of the Reorganisation Commission would suggest, that a rise in profits is always associated with a decline in supply. In 1923, for instance, when a peak in profits occurred, there was an increase in supply over the previous year. This increase in supply, however, was not sufficient to reduce profits, and a further increase in supply next year brought a decrease in profits. The rise in profits was not due to a decrease in supplies, but to an insufficient increase. In any industry in which the demand is inelastic, any deviations from what might be termed the equilibrium output will bring about proportionately large variations in prices and therefore in profits. As the demand for bacon is probably inelastic, any mistakes will therefore necessarily cause considerable changes in profits.¹

The second factor which might be of importance in inducing changes in profits is the variation which occurs in the costs of feed-stuffs. These movements are termed by the Reorganisation Commission a "feeding-stuffs price-cycle." Changes in these prices are of course determined by world conditions. Now it seems probable that these fluctuations in prices are not due to human causes at all, but to climatic causes. This has undoubtedly been the reason why in the United States, the price of corn (the chief pig feed there), has tended to fluctuate,² and there seems no reason to think that an examination of the causes of fluctuations in the prices of other feed-stuffs would lead to any different conclusion. This seems probable since there is a very definite tendency for the prices of the various feeding-stuffs to move up and down together. This type of

¹ It might be thought that since demand changes, the assumption of the Commission may be correct and that a four-year cycle instead of a two-year cycle is obtained because certain changes in the supply of pigs are offset by changes in demand. This might be true, but an examination of demand changes shows that demand did not change in this period in the way which would have been necessary to bring about this result.

² See Oris. V. Wells, *op cit.*, p. 38.

cycle has of course been noted by various economists.¹ What effect has it had on the operations of pig farmers? An attempt to obtain some idea of the effect of these fluctuations—which are probably at the present time largely unpredictable—was made by considering what the profits of pig breeders would have been had these fluctuations not existed. The profits of pig breeders were calculated, merely assuming that costs had followed the trend. The result of this calculation was rather remarkable. It shows that very little difference would have been made to the profits of pig breeders if these fluctuations in the prices of feed-stuffs had been eliminated. Profits would have been rather higher in times of low profits and rather lower in times of high profits, but considered generally the change would have been slight. This implies that the cycle of profits is not due to fluctuations in the costs of feeding-stuffs; for there is a greater variability in store-pig prices than in feeding-stuffs prices, and also the cost of production is determined by a seven-months' moving average and, therefore, this fluctuates much less than do feed-stuffs prices. Once again, it should be noted that there is no long-run problem. Although the trend of costs has been downward, this has been offset by a fall in the price of pigs, so that the trend of profits has tended to remain stable.

The third fact which we have to examine is the response of pig farmers to changed prices. An examination of the figures relating to British production and the annual imports from the chief countries exporting bacon to this country shows, however, no correlation between the movements in different countries. Not only are the trends quite different—some increasing, some decreasing and some remaining approximately stationary—but so also are the fluctuations about the trends. The volume of imports, about 85 per cent. of total consumption and therefore one of the main influences determining the price—becomes in consequence the resultant of conflicting responses and must be extremely difficult to foresee.

Summary

The results of this section can now be summarised. Pig farmers in Great Britain tend to expand production when pig farming is profitable and to contract when it is unprofitable.

¹ For such examples, see H. L. Moore, *Generating Economic Cycles*; A. C. Pigou, *Industrial Fluctuations*.

Without this movement, it is clear that there could be no tendency towards equilibrium at all. If, however, they do this assuming that present prices and costs will continue, then given certain conditions which are probably fulfilled in the case of the pig industry, it can be shown that there will be a tendency to disequilibrium. This argument—that of the Reorganisation Commission—was, however, rejected on various grounds. Firstly, a study of variations in the profits of pig breeders showed that pig breeders reacted immediately to changes in profitability. There was not a lag as had previously been suggested. If, therefore, the Commission's argument were correct, one would expect not a four-year cycle, but a two-year cycle. Secondly, it was shown that high profits were not always associated with a decrease in the British supply, but sometimes with an increase. Thirdly, an examination of the actions of feeders showed that they did not make this assumption; and, therefore, breeders probably did not make it either. A study of the factors that might make for instability in profits suggested that though variations in costs were probably unimportant, yet variations in demand and in the response of foreign producers (both very difficult to forecast) were probably extremely important. It was also noted that the long-run adjustment was a correct one—increased demand brought increased supply, and decreasing costs brought decreasing prices, so that the trend of profits was neither up nor down.

III

The Recommendations of the Commission

We may now evaluate the appropriateness of the practical proposals made by the Reorganisation Commission. It has already been shown that the assumption made by the Commission as to the behaviour of pig farmers is almost certainly incorrect and that the fluctuations in profits which do occur are short-run deviations from a correct trend, causing considerable fluctuations in profits owing to the inelastic demand for bacon products. The problem of the pig-cycle is essentially a short-run problem. Any action, therefore, which is taken by the Government to eliminate the pig-cycle should be confined to securing short-run adjustments.

What were the recommendations of the Reorganisation

Commission? The Commission recommended that annual supplies of bacon and hams should be stabilised at 10,670,000 cwt.—the average of the years 1925-30.¹ Quotas for imported bacon and hams would be adjusted as home production varied to keep supplies at this level. One of the objects of the contract system which was recommended was to give a means whereby some idea could be obtained of home production so that quotas could be fixed accordingly. The object of this stabilising of supplies was “to limit the effect of the pig-supply cycle.”² It was hoped “to promote stability in a free market.”³ It should be noted that the Reorganisation Commission’s policy of stabilising production ignores long-run changes in demand and costs, and may well substitute long-run fluctuations in profits for short-run fluctuations. If there is ever an attempt to readjust to long-run changes, the fluctuations in profits will almost certainly be more violent than anything which now exists.⁴ The authorities set up to control the British pig industry are likely to be faced with the alternative either of ignoring the long-run trend or, by adjusting to it, of producing a very violent fluctuation in profits. The recommendations of the Commission do not therefore solve the real problem, which is that of securing correct short-run adjustments. The only proposal of the Commission which seems appropriate is the one to provide better market intelligence. If, however, the recommendation of the Commission to stabilise supplies is carried out, then this proposal loses a great deal of its value.

In addition to the desire to eliminate or reduce the pig-cycle, the Commission advanced as a further argument for Government intervention the necessity of preventing a collapse in the British pig industry as a result of the great fall in prices which occurred in 1931. The Commission stated: “We are satisfied that recent prices of pigs and pig products have been dangerously low from the producers’ point of view, that these low prices are not to the ultimate benefit of the consumer, and that the orderly expansion of the home bacon industry cannot be achieved unless the relatively high imports of bacon from established Continental industries are regulated.”⁵ The stabilisation of supplies was something more than a mere

¹ Pp. 30-1.

² P. 63.

³ P. 71.

⁴ It does not appear that the proposal to fix minimum prices for pigs based on the prices of feeding-stuffs will have much, if any, effect on prices, since it does not appear that at any time bacon-pig prices were below the cost of feeding. Cf. Ruth Cohen, *op. cit.*, *Economic Journal*, September 1934.

⁵ P. 63.

stabilisation—it was also a restriction of supplies. Their choice of the average of the years 1925-30 ignores the fact that supplies were increasing throughout this period. 1931, a year of even greater supplies, was ignored because of its "abnormality." Without discussing whether it is desirable to prevent any contraction in an industry when production there has become relatively unprofitable, it should be noted that there is no evidence that profits in pig production had fallen to an excessively low level. Figure 2 shows that the average "profit" margin per pig was no lower in 1931-2 than in former periods of declining prices. The "profits" curve shows no signs of a "great" depression in pig production. This, of course, is due to the fact that the fall in the prices of bacon-pigs was accompanied by a fall in the costs of feed-stuffs. Feed-stuffs do not constitute the whole of the costs of pig production, but the other costs are not likely to have risen during this period, so that the net profit margin on pig production was no lower in 1931-2 than in the corresponding periods of low prices in earlier years. Indeed, the position of feeders seems to have been better than in other periods of low profits. As these periods of falling profits did not bring about any marked decrease in the British pig industry, there is no reason to suppose that the situation in 1931-2 was such as to call for any emergency measures. Having regard to the fall in the cost of living during this period, the position of pig farmers would appear to have been actually better than in previous years. The preoccupation of the Commission with the level of prices instead of the profit margin has meant that the really significant feature has been ignored.¹

The only grounds for intervention which can be based on a study of fluctuations in the profits of pig farmers are those dependent on the lack of information among farmers of changes in the prices of pigs and feeding-stuffs. It has been shown that the causes of these fluctuations are much more complex than those suggested in the Report of the Reorganisation Commission. If, therefore, the above analysis is correct—much of it must, of course, be regarded as tentative—it is doubtful if anything useful can be done other than the provision of better market knowledge, so that farmers will be enabled to make in the future as good adjustments in the short run as they have been able to make in the long run.

¹ This paper is not concerned with those proposals of the Commission unrelated to the desire to remove or reduce the short-run fluctuations in prices and profits.

APPENDIX

GREAT BRITAIN

	Total Pig Popula- tion ooo's	No. of Brood Sows ooo's	No. of Boars being used for Service ooo's	Estimated No. of Pigs slaught'd ooo's	Imports of Bacon into United Kingdom.	
					cwt. ooo's	Price per cwt. £
1920 ...	2,123	304	22.5	2,713	5,612	8.97
1921 ...	2,651	354	26.1	3,312	5,678	7.67
1922 ...	2,450	321	25.0	3,504	5,932	5.99
1923 ...	2,798	413	28.8	3,715	7,793	4.90
1924 ...	3,427	473	35.0	4,406	7,873	4.75
1925 ...	2,799	333	26.4	4,172	7,486	5.64
1926 ...	2,345	319	23.3	3,461	7,471	5.71
1927 ...	2,888	420	28.2	3,639	8,482	4.56
1928 ...	3,167	402	28.7	4,172	8,853	4.56
1929 ...	2,509	323	23.8	3,803	8,278	5.28
1930 ...	2,453	334	22.6	3,397	9,191	4.48
1931 ...	2,945	423	28.9	3,765	11,134	2.98
1932 ...	3,350	445	31.4	*	11,391	2.65
1933 ...	3,236	428	31.1	*	9,084	3.29
1934 ...	3,519	477	*	*	7,599	3.95

*Not available.

The Modification of the Utility Curve for Money in the Cases of Indivisible Goods and Goods of Increasing Utility

By UMBERTO RICCI

PART I

Indivisible Goods

I. INTRODUCTION

I. LÉON WALRAS has taught us to construct the curve of the final degrees of the utility of money when these two fundamental assumptions are made:

- (1) that the individual *consumption goods*, for the purchase of which money is used, are *infinitely* divisible and, moreover, their utility is such,
- (2) that the utility of successive portions, all equal, of a given article is continually *decreasing*. This second assumption is also known as Gossen's Law.

The curve of the degrees of utility is then descending. It will not, however, appear *continuous*, not even in the case in which the curves of utility of individual goods are continuous. In every point of the utility curve of money where a new article of consumption is inserted, the continuity of the curve is broken. Hence the utility curve of money, though composed of continuous arcs (where the curves of the individual goods are continuous), may be discontinued at certain points: generally at $n-1$ points if there are n goods.

If it is admitted that some goods have an *infinite* initial utility (a question which will be raised later: see paragraph 18), then the utility curve of money will also have an infinite initial utility.

The curve of the final degrees of the utility of money may be called *Walras' Curve*.

II. GOODS MODERATELY DIVISIBLE

2. To approach the real conditions in which consumption happens, we can abandon the assumption of the infinite divisibility of goods, and begin by admitting a *moderate divisibility*. Then, having selected a small unit of money, for example a halfpenny, we shall call *divisible* all those goods which can be divided into halfpennyworths.

Is it possible to buy a halfpennyworth of bread? Well, let us call whatever quantity of bread can be bought with a halfpenny, a *dose* of bread. The utility which that dose of bread has for an individual, becomes *the utility of a halfpennyworth of bread* for that same individual. Hence we shall have: the utility of a *first* halfpenny in bread, the utility of a *second* halfpenny in bread, of a *third* halfpenny in bread, etc. If the individual is able to measure the utility of these successive doses of bread, we shall have a curve, naturally discontinuous, of the *primary*¹ utility of *money expended on bread*.

We shall be able to represent this primary curve by means of a succession of vertical thick *lines*, or, to speak more accurately, of small rectangles, joining each other. The bases of the rectangles are all equal and represent a halfpenny. They are placed on the same horizontal axis. The heights of the rectangles are proportional to the utilities of the respective halfpennies. Altogether it is a specimen of the diagrams which manuals of statistics call "*organ pipes*."

Analogously we can represent by means of a succession of rectangles the utilities of a first halfpenny in milk, of a second halfpenny in milk, and so on. Then we shall have the *primary* curve of the utilities of money in milk.

3. Given several of these curves, their amalgamation is very easy. It is enough to separate all the rectangles (all the "*organ pipes*") from one another and to rearrange them in a single *decreasing order of altitude*.

There is a famous theorem which can be indifferently attributed to Jevons or to Walras, according to which the final utilities of the various goods are proportional to the prices of the respective goods. This theorem can also be stated in another way: the *final* ordinates of the various *primary curves of the utilities of money* are equal to each other. Now, once the hypothesis of the infinite divisibility of goods

¹ The Italian original is "*univoca*," which has no equivalent in English. The nearest approaches are "*simple*" and "*unequivocal*," neither of which seem appropriate here.

is abandoned, the theorem of Jevons and Walras is no longer valid except as an approximation. It comes to this: one cannot pass directly from the spending of one halfpenny to the spending of another on the *same* article, if a halfpennyworth of another article can give a utility intermediate between the two.

4. It is convenient to have a name for both these primary curves and the curve which embodies them all. We will use the expression: the curve of the *elementary* utilities.

We should have then: the curve of the elementary utilities of bread, the curve of the elementary utilities of milk, the curve of the elementary utilities of whatsoever other goods are consumed, and lastly, the curve of the elementary utilities of money.

5. It is understood that the curves of the elementary utilities, both for the individual goods of consumption and for money, since they concern the *consumption* of an individual, must relate to a *period of time*: a day, a week, a month or a year.

III. INDIVISIBLE GOODS AND THE ADVANTAGE OF ACQUIRING THEM

6. Indivisibility is a function of the unit of money chosen for the constitution of the elementary utilities of money. For example, if we adopt a halfpenny as a unit, a newspaper which costs 3d. becomes an indivisible article. If, instead, we adopt as a unit of money exactly 3d., the paper would become one dose of a divisible article. A postage-stamp which costs a shilling is an indivisible good if we take 3d. as a unit of money and divisible if we make the unit of money 1s. But even if we took the shilling as the unit, a theatre ticket which costs 10s.; a doctor's visit which costs 20s., and a journey which costs 100s. would remain indivisible goods.

7. Now we come to consider one of the *indivisible* goods, that is, an article which cannot be bought or enjoyed without spending a quantity of money larger than that chosen as a unit.

How can the utility of an indivisible good (C) be represented graphically? Let U_c be the utility of the good, let p be its price, which by hypothesis is greater than 1, and, in order not to complicate the cases, let us suppose that p is a whole number. Let us construct a rectangle whose base is p times the base of the individual rectangles, which represent the utilities of the individual units of money (para. 2). If we take the base of the

said rectangles as 1, the base of the new rectangle which we are constructing will be expressed by the term p . Then let

the height of the new rectangle be $\frac{U_c}{p}$. This new rectangle will

be exactly the representation desired. For the sake of brevity we shall refer to it as the *indivisible rectangle*, and we shall call its height the *unit utility of the indivisible good*.

8. How can we show whether or not it is advantageous to the individual to acquire the indivisible good of utility U_c ? Let us suppose that all the consumption goods desired by the individual are n in number. Of these $n-1$ are moderately divisible and only (C) of utility U_c is indivisible.

Then we shall have $n-1$ primary descending curves of the utility of money. Let us arrange them together on the same base and we shall then have a curve which we shall call a *quasi-complete curve* of the elementary utilities of money. Let us give an extremely easy numerical example: for the successive units of money, the elementary utilities are set forth below, in the top line, and below, in brackets, are the respective ordinal numbers of the units of money:

∞	100	60	50	45	30	19	11	5	2
(1st)	(2nd)	(3rd)	(4th)	(5th)	(6th)	(7th)	(8th)	(9th)	(10th)

We leave it to the reader to trace on squared paper a series of rectangles having the equal bases and heights proportional to the number shown in the top line. Since the first unit of money has infinite utility, a figure having the form of a letter U will be substituted for the first rectangle.

9. Let us make $U_c = 60$, $p = 3$; hence the indivisible rectangle has 3 for its base and 20 for its height. Since the unit utility 20 is between 30 and 19 (the respective utilities of the 6th and 7th units of money of the quasi-complete curve), it is clear that the individual ought to possess more than 6 units of money before thinking of acquiring the indivisible good. To decide definitely on the acquisition of it, he should possess at least $6 + 3 = 9$ units of money.

If he had only 7 units, he would have to use the 5th, 6th and 7th units of money, losing in all the utilities $45 + 30 + 19 = 94$ in order to obtain in exchange the utility 60; the operation would be *uneconomical*. If he possessed 8 units of money, the acquisition of the good (C) would cost him the 6th, the 7th, and the 8th units of money. In all he would lose the utility 60. The operation would be a matter of *indifference*:

the individual would be left in the same condition whether he acquired the indivisible good or not. When, however, the individual has at his disposal 9 units of money, then the operation (of acquiring C) becomes *advantageous*: the sacrifice would be $19 + 11 + 5 = 35$, whilst the utility obtained in exchange would be 60.

10. Let us take another example. Leaving the quasi-complete curve unaltered, let us say that the indivisible good has the utility 93. The price remains equal to 3. Then the indivisible rectangle will have 3 for its base and 31 for its height. Since 31 is between 45 and 30 (the respective utilities of the 5th and 6th units of money), it is evident that the individual can use for the acquisition of the indivisible good the three units of money which follow the 5th. So it really happens. If the individual had only 6 units of money, the purchase of the indivisible good, of the utility 93, would cost him $50 + 45 + 30 = 125$; if he had 7, the sacrifice would be equal to $45 + 30 + 19 = 94$. When, however, the individual has 8 units there is no doubt the purchase is advantageous. He loses the utility 60 and secures the utility 93.

11. From these two examples we easily deduce the general rule. Let p be the price of the indivisible good, U_c its utility. If, in the quasi-complete curve of the elementary utilities of money, the total utility of the last p units of money is less than U_c , it is certainly advantageous for the individual to buy the good; if it is exactly equal to U_c , it is a matter of indifference whether he buys or not; if it is greater than U_c , the purchase would be disadvantageous.

12. In the case where the quasi-complete curve is a succession of continuous arcs, the unit of money (the base of the elementary rectangle) becomes infinitely small. The height of the rectangle could then be called the *degree* of utility. The quasi-complete curve will then be a quasi-complete curve of the *final or marginal degrees* of the utilities of money. We have the equation:

$$u_m = u_m(m)$$

where m is the amount of money possessed by the individual and u_m is its final degree of utility when the money m is all used in acquiring the infinitely divisible commodities. Let us solve with respect to m the equation:

$$\int_{m-p}^p u_m(m) dm = U_c.$$

Let $\bar{m}$ be the solution. Then the acquisition of the indivisible commodity is indifferent. In ordinary language this equation is stated in the following terms: whilst the income of the individual is such that the total utility of the last p units of money spent on divisible commodities equals the utility of the indivisible commodity (whose price is p), it is a matter of indifference whether he spends the sum p on divisible commodities or on the indivisible commodity. Such an income is that which we decided to call $\bar{m}$.

Then it is evident that two other cases are possible:

- (1) The income of the individual is greater than $\bar{m}$, and then it is certainly advantageous for him to purchase the indivisible commodity.
- (2) The income is less than $\bar{m}$. Then the purchase of the indivisible commodity would certainly be wasteful.

This can be represented graphically in the following way: let YY' (Fig. 1) be the quasi-complete curve. Then we have to find under the curve an area (the shaded one) such that with a base $\overline{MR}$ equal to p the area is U_c . The acquisition is advantageous, uneconomic, or a matter of indifference, according to whether the amount of money possessed by the individual is greater than, less than or equal to $\overline{OR}$.

IV. THE CONSTRUCTION OF THE COMPLETE CURVE OF THE ELEMENTARY UTILITIES OF MONEY, ASSUMING THE EXISTENCE OF AN INDIVISIBLE COMMODITY

13. Until now we have discussed the problem: how to decide whether it is advantageous or not to acquire the indivisible commodity. Now there is a further problem. Once the acquisition of the indivisible commodity is decided, how shall we merge the quasi-complete curve and the indivisible rectangle into a single curve, which we shall call the *complete curve of the elementary utilities of money*?

The problem is *indeterminate*. It becomes determinate whenever the following rule is established: that the utilities of the successive units of money (the elementary utilities) are arranged as far as possible in *descending* order. Then the position of the indivisible rectangle becomes definite.

Let us adopt, as a quasi-complete curve, that of paragraph 8 reproduced in columns 1 and 2 of Table I. The utility of the indivisible commodity (C) is 60, and its price is 3.

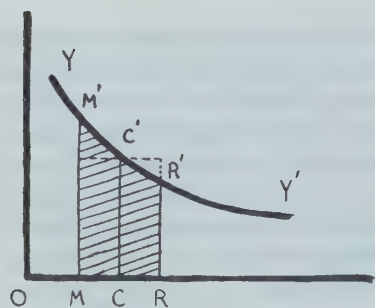


FIG. I



FIG. 2A

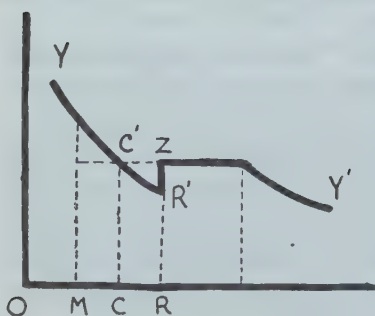


FIG. 3



FIG. 2B

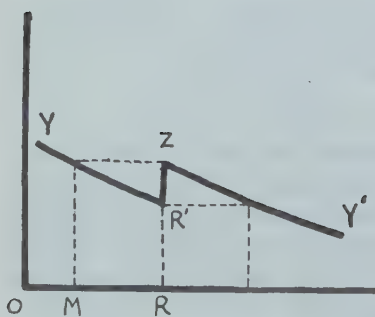


FIG. 4



FIG. 2C

Making successively the assumptions that the individual possesses an income in money r equal to 8, 9, 10, 11, 12, 13 units, we shall have the complete curve described in Table I. *Two* curves correspond with the assumption $r = 8$, according to whether the individual follows one or other of the two ways which are indifferent to him: to acquire or not to acquire the

indivisible good. Each time we have underlined and put in single brackets the utilities of the indivisible good.

TABLE I

THE COMPLETE CURVE OF THE ELEMENTARY UTILITIES

Units of money (1)	Quasi-complete curve (2)	Complete curve of the elementary utilities								Terminal utility (11)	Marginal utility (12)
		$r=7$	$r=8$		$r=9$	$r=10$	$r=11$	$r=12$	$r=13$		
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		
1	∞	∞	∞	∞	∞	∞	∞	∞	∞	...	...
2	100	100	100	100	100	100	100	100	100	100	100
3	60	60	60	60	60	60	60	60	60	60	60
4	50	50	50	50	50	50	50	50	50	50	50
5	45	45	45	45	45	45	45	45	45	45	45
6	30	30	30	20	30	30	30	30	30	30	30
7	19	19	19	20	20	20	20	20	20	19	19
8	11	...	11	20	20	20	20	20	20	20, 11,	11
9	5	...	...	...	20	20	20	20	20	20	30
10	2	...	...	...	...	19	19	19	19	19	19
11	0	...	...	...	...	...	11	11	11	11	11
12	0	...	...	...	...	...	...	5	5	5	5
13	0	...	...	...	...	...	...	...	2	2	2

14. We wish to discover the conformation of the complete curve of the elementary utilities of money when the quasi-complete curve is composed of continuous arcs. There exists, let us remember, a single indivisible good called (C). Three cases can be taken, represented respectively in Figs. 2a, 2b, and 2c.

Let us return to Fig. 1. Let us transform the shaded area into a rectangle with an equal base. The top of the rectangle is the dotted line. It will intersect YY' at a point C' , the projection of which on the axis of the abscissa will be C .

We already know that, if the income of the individual is $\overline{OR}$, he is indifferent whether or not to acquire the indivisible commodity. If he declines it, the curve of the elementary utilities coincides with the arc YR' . If he decides to acquire it, the rectangle is substituted for the shaded area and the curve of the elementary utilities takes the form which is seen in curve 2a. It therefore has a vertical rise before the indivisible rectangle.

If the income increases, the rise diminishes, finally to disappear, when the income is exactly $\overline{OC} + \overline{MR}$. Then it only remains to cut off the quasi-complete curve at C' (Fig. 1)

and to put it immediately behind the indivisible rectangle. Thus Fig. 2b is obtained.

If the income is then again increased, and thus becomes greater than $\overline{OC} + \overline{MR}$, then the quasi-complete curve reappears in an arc which follows YR' and is placed to the right of the indivisible rectangle. Thus Fig. 2c is obtained.

We can arrive at the same conclusion by another method. Instead of taking as fixed the price of the indivisible commodity and making the income of the individual vary, we can fix the income and vary the price. What happens when the price of the indivisible commodity decreases while its utility remains fixed? The base is shortened and the height increased. Hence it is easily seen how an indivisible commodity, which it was not advantageous to buy at a certain price, i.e. is not worth including in the consumption of the individual, by progressive reductions in the price can eventually be included. The indivisible rectangle will take successively the positions in Figs. 2a, 2b, and 2c, and continuing to increase in height will move more and more to the left.

V. THE CURVE OF THE TERMINAL UTILITIES OF MONEY. THE CURVE OF THE TERMINAL DEGREES OF THE UTILITIES OF MONEY

15. Having before us all the curves registered in the columns from 3 to 10 of Table I, we can call the utility of the last unit of income *terminal*. We can see that the terminal unit—shown in column 11 of the Table—is a function of the income. And we can make a *curve of the terminal utilities* as follows: the lower line shows, in brackets, the ordinal numbers of the respective units:

∞,	100,	60,	50,	45,	30,	19,	$\left\{ \begin{array}{l} 11, \\ 20 \end{array} \right.$
(1st),	(2nd),	(3rd),	(4th),	(5th),	(6th),	(7th),	(8th), (9th),
			19,	11,	5,	2.	
			(10th),	(11th),	(12th),	(13th).	

In the case studied in paragraph 9, in which $U_c = 93$, $p = 3$, we should have:

∞,	100,	60,	50,	45,	30,	19,	31,	30,
(1st),	(2nd),	(3rd),	(4th),	(5th),	(6th),	(7th),	(8th),	(9th),
			19,	11,	5,	2.		
			(10th),	(11th),	(12th),	(13th).		

The curve of the terminal utilities is unique and is equally valid for all the incomes of the individual.

We perceive a consequence which at first sight is paradoxical: the curve of the terminal utilities is not always descending nor even only horizontal. There is a terminal utility which is above the preceding utility. This is true of the 8th and 9th units in the case where $U_c = 60$ and of the 8th unit in the case where $U_c = 93$.

The explanation is easy to find. When the individual decides to buy the indivisible commodity, he substitutes for a group of decreasing elementary utilities ($30 + 19 + 11$) a group of single utilities equal to each other (20 each) but *lying between the greatest and the smallest utilities* of the displaced group. Hence the terminal utility of all the income is higher (20 instead of 11).

16. Let us explain the construction of the curve of the terminal utilities on the assumption that the quasi-complete curve is *continuous*. Whilst the income remains less than $\overline{OR}$ (Fig. 1), the curve of the terminal utilities is coincident with the quasi-complete curve YR' . As soon as the income becomes greater than $\overline{OR}$ it becomes advantageous for the individual to acquire the indivisible commodity, and the unit utility of the indivisible commodity (or the height $\overline{CC'}$ of the indivisible rectangle) becomes the terminal utility, and it remains so while the income remains between $\overline{OR}$ and $\overline{OR} + \overline{MC}$. Later, the curve of the terminal utilities again becomes identical with the quasi-complete curve. Thus arises the curve $YR'ZY'$ (Fig. 3).

When the quasi-complete curve is continuous, the curve of the terminal utilities can be called the curve of the *terminal degrees* of the utility of money. Fig. 3 shows and explains that the curve has one sharp rise in the point with abscissa $\overline{OR}$ and immediately afterwards a horizontal track and after that it begins to descend. The horizontal track is equal to $\overline{MR}$.

VI. THE CURVE OF THE FINAL UTILITIES AND OF THE FINAL DEGREES OF UTILITY

17. Now we can propose still another question. How much does the total utility increase when the income is increased by

a unit of money? Evidently this addition is a function of the income. Thus, turning to Table I, we see that

when the income increases	the total utility increases by
from 7 to 8	11
from 8 to 9	30
from 9 to 10	19
from 10 to 11	11
from 11 to 12	5
from 12 to 13	2

We can then construct a third curve, which will tell us what increment in the total utility is due to the r th unit of income (see column 12 of Table I).

Like the curve of the terminal utilities this also is unique for all the incomes of the individual. What shall we call it? A moment's reflection will suggest the appropriate name. For it is no other than the curve of the *final or marginal utilities*.

Supposing the total utility U is known of a certain amount a of a commodity (A). Then adding to a a small quantity Δa , the total utility will be increased by a quantity ΔU . This increase is the *marginal or final utility*. The quotient $\frac{\Delta U}{\Delta a}$

is the *marginal or final degree of utility*.

Inversely the total utility U can be conceived as the sum of the successive final or marginal utilities.

From these concepts are derived, by extension, the others of "a small increment of money" and "a small increment of the utility of money." In order that we can speak of the *final or marginal utility of money*, it is necessary that by adding all the successive final or marginal utilities the *total utility* is composed. Hence the utilities indicated in column 12 of Table I are indeed the final or marginal utilities.

18. Let us proceed to the construction of the curve of the marginal utilities on the assumption of a *continuous quasi-complete curve*. While the income remains less than $\overline{OR}$ (Fig. 1 and Fig. 4), the curve of the final utility is identical with the quasi-complete curve. When the income is exactly equal to $\overline{OR}$, the individual may or may not buy the indivisible commodity and the total utility is the same either way. As soon as the income in the slightest exceeds $\overline{OR}$, the individual, after having bought the indivisible commodity, uses the small increment of money to acquire divisible commodities, and the

quasi-complete curve once more becomes valid from the point at which the acquisition of the indivisible commodity had broken it, that is from the point M' (Fig. 1). The curve, which in this case deserves the name of the curve of the marginal or final *degrees* of utility, is the $YR'ZY'$ of Fig. 4. It is not descending throughout its length, but has an upward turn at the point with the abscissa $\overline{OR}$. It is also interesting to notice that it has two arcs equal to each other (one following the other), equal because they both equal the arc $M'R'$ of Fig. 1.

19. In the case where all the commodities are divisible and all the utilities decreasing,

- (1) the complete curve of the *elementary* utilities of money (constructed to the satiation income),
- (2) the curve of the *terminal* utilities of money, and
- (3) the curve of the *final or marginal* utilities of money

coincide. When consumption goods were all considered divisible and all subject to Gossen's Law (that is, all had decreasing utilities), no person could imagine to distinguish between them the three curves of the utility of money. There was therefore one curve alone. But as soon as we consider an indivisible commodity, the distinction between the curves at once appears.

In Walras' scheme, every primary curve is formed by the decreasing utilities of successive small units of money. When I possess r units of money, I distribute it between various uses, taking care that the marginal utility of the money is the same in every use. If r_a, r_d, r_e , are the expenses on single goods, or the primary expenses, and r is my total income, then

$$r = r_a + r_d + r_e + \dots$$

When my income increases from r to r' , I shall make another distribution:

$$r' = r'_a + r'_d + r'_e + \dots$$

and it is certain that

$$r'_a > r_a, r'_d > r_d, r'_e > r_e \dots$$

When the indivisible good (C) is introduced, if the total income r increases, it is possible that one or more of the

primary expenses are reduced in order to give place to the indivisible good, which requires a fixed number of units of money.

The consequence of this is that the complete curve for satiation income contains the complete curve of all the smaller incomes. It has become a single curve like the curve of the marginal utilities and is identical with it.

But, drawing one after the other all the complete curves (cols. 5 to 13 of Table I), after the indivisible commodity has appeared (that is, after $r = 8$), we see that one is no longer the prolongation of the other.

Hence the distribution of a given income, $r > 8$, must be considered as a system by itself. Once r is known, I decide that I ought to divide it into $r_a + r_d + r_e \dots$. The utilities of each expense on a *divisible* commodity, r_a, r_d, r_e will be represented by a succession of *decreasing* rectangles, since it is evident that I cannot enjoy the second unit of the little stock r_a without having enjoyed the first, which by hypothesis has a larger utility for me.

Instead of moulding into the quasi-complete curve the various diagrams concerning the utilities of the single expenses r_a, r_d, r_e , I could keep them distinct from each other. The chart which included all these diagrams, plus the eventual indivisible rectangle with the area U, would be no other than the hedonistic version of one of those documents known in economic statistics as "family budgets."

From what we have explained it is apparent that for the same individual we cannot speak of *one* complete curve, but of a *complex* of complete curves of the elementary utilities of money.

20. An earlier hint to the theory of the utilities of indivisible commodities is to be found in the essay of A. J. Cohen Stuart on progressive taxation.¹ He uses a rectangle to represent the utility of the indivisible commodity and he calls it the *indivisible rectangle*. He shows that the position of the indivisible rectangle begins in the graph of the line of utility when it is possible to find on the abscissa axis a segment which equals the base of the indivisible rectangle and at the same time has above it an area equal to that of the rectangle of utility. He constructs correctly the curve of the final degrees of utility on the

¹ A. J. Cohen Stuart. *Contributo alla teoria dell' imposta progressiva sul reddito* (Biblioteca dell' *Economista*, Serie V, Vol. 15, pp. 478-80.)

hypothesis of the presence of an indivisible commodity among the entirely divisible goods. However, the significance to be attributed to a curve which he calls "the line, which unites the heights of the rectangles, which represent the normal satisfaction of needs," and which in every case does not coincide with any of our curves of the elementary utilities, nor with our curve of the terminal utilities, is not clear.

VII. A DIGRESSION ON THE INITIAL UTILITY OF INCOME

21. We must here refer to the problem of whether the utility of the first units of money is infinite. Some admit it and some do not. If, for example, it is believed that the curve of the final degrees of the utility of money can be represented by an equilateral hyperbola—such is the famous law of Daniele Bernoulli—a first small portion of money has infinite utility.

Cohen Stuart, on the other hand, is of a contrary opinion. The considerations which he elucidates in his theory of progressive taxation (and which, as we must admit, are not a model of lucidity) are thus summed up.¹ That amount of goods which is strictly necessary to support the life of the individual is a *sine qua non* of life and hence has no less importance for him than life itself.

Now life consists of two things: (a) the possession of life itself, that is, breathing, seeing light, etc., and (b) the possibility of enjoying the part of income which exceeds the subsistence minimum.² If the utility of the things which constitute the minimum equals the utility of life, that is, utility (a) plus utility (b), it is certainly very great but it is not infinite. The author believes he can show this by the following example. A poor man is told that his end is near. He will listen calmly; perhaps he will even be glad to abandon a hard and joyless existence. Later it happens that the dying man is told that he has been left a great fortune. He now anxiously scrutinises the face of the doctor. The value of life has increased. To the utilities of things constituting the minimum and which the patient has already possessed, come in addition the utilities

¹ A. J. Cohen Stuart. *Op. cit.*, pp. 450-4.

² We exclude the goods which constitute the minimum in order to avoid arguing in a circle. We do not want to include the utility of the minimum income among the causes of itself.

of all the new things which he will henceforth be able to acquire.

This last phrase seems to show that we are counting twofold the utility of the surplus, that is, of the new things which accrue to the minimum. So it is in fact, and we will prove it in the following paragraph, where we shall try to develop the ideas which are probably included in the reasoning of Cohen Stuart.

22. The minimum income, one could argue, has an *instrumental or indirect* utility and a *direct* utility. The direct utility is that which is experienced in eating, using the minimum defence against the elements, enjoying a minimum of State protection, etc. Let us call it U_{α} . But *besides* furnishing this direct utility, the minimum income has also an indirect one, which is that of keeping us alive and thereby enabling us to enjoy *free or non-economic* goods. Cohen Stuart apparently refers to these when speaking of the enjoyment of breathing and of appreciating light; air and light are precisely such "free goods." Let us call the utility of free goods U_{β} . Lastly, by being alive we have the opportunity of enjoying the utility of the economic goods constituting the income exceeding the minimum. Let us call it U_{γ} . This third quantity increases with the growth of the income exceeding the minimum, although less than in proportion. Hence the utility of the minimum income is:

$$U_{\mu} = U_{\alpha} + U_{\beta} + U_{\gamma}$$

There is no double counting, one could continue to argue, in this adding of the direct and instrumental utilities, because they are not alternatives, but they co-exist. The minimum income really has a double function, that is, it provides utility U_{α} and at the same time maintains life. Consequently, however great U_{γ} is, U_{μ} is always greater. Even if it be objected that the utility of the economic goods involves a subjective cost, and hence there is a deduction to be made from U_{γ} , the conclusion remains valid.

But the double counting appears as soon as we add together the utility of the minimum *and* the utility of the surplus, in order to calculate the total utility enjoyed by the individual. Indeed this total utility is:

$$U_{\mu} + U_{\gamma} = U_{\alpha} + U_{\beta} + 2U_{\gamma}$$

Another consequence of this manner of counting the utility of the minimum is that the utility of one and the same

minimum income, for a same person, is no constant magnitude, but depends from the total revenue of the person. It increases as the surplus income (and therefore its utility U_2) increases.

23. However, Cohen Stuart asserts that the utility of the minimum income and the utility of the surplus income are mutually *incommensurable*, that is, that they do not admit a common measure, and therefore a proportion cannot be established between the two utilities. He concludes from this that the utilities of the first parts of the income cannot be calculated.

24. The question can be resolved by resorting to the deductive method, that is, relating the matter to some other principle. For example, the following postulates can be made:

- (1) the satisfaction of living is infinite,
- (2) then, when an individual is driven to suicide by poverty, or the prospect of poverty, the quantity of money which would divert him from suicide has for him the same utility as life.

As a result of that:

- (3) the utility of the quantity of money, without which he is induced to sacrifice his life, is infinitely great.

After the persecution of the Jews by the Nazi Government in Germany there were many suicides among them. In one country or another there have always been suicides, which have been due to the suffering of pangs of hunger, or, what is no less terrible, the inability of men to bear the sight of their own children in starvation. One hears of merchants who have gone bankrupt, and of gamblers who have left the gaming-table penniless, killing themselves. It must be admitted that the amount of money, deprivation of which would remove all desire for life, has for the given person an infinite utility.

We must repeat that the infinite magnitude of the satisfaction of living is here simply postulated. It may be admitted or not; but once it is admitted, it follows as a corollary that the utility of the minimum income is infinite.¹

25. Another way of confronting the problem is that alluded to in paragraph 10 of my essay "Può una curva di domanda esser crescente?" (*Giornale degli Economisti*, April 1932). The term "the infinite magnitude" is taken to mean "a magnitude superior to every finite magnitude, whatever that is." Now, however great may be the utility of things

¹ This is no repetition of the argument of the preceding paragraph as the infinite utility of living is not the total utility of the things enjoyed during the life.

which are not indispensable to the continuation of life, the utility of those really indispensable will always be greater, hence it may be called infinite.

How shall we demonstrate that the utility of the minimum income is always greater than the utility of the rest? In the last analysis we must resort to intuition. We cannot resort to experiment. We cannot offer to someone to choose between the minimum and the surplus, as nobody can enjoy the surplus without having already enjoyed the minimum. Otherwise, to represent the utility of the first dose of money with a rectangle, the surface of which is superior to the surface of all the successive decreasing rectangles taken together, however numerous those rectangles are, is no demonstration, but only a graphic expression of the principle.

Perhaps we may have recourse to the reasoning contained in paragraph 28 (2).

26. There is also a third method, which implies a sort of experiment—in any case an external observation. It has been observed by Frisch that whenever the general level of prices rises, the curve of the utility of money is raised in a first arc and is lowered in a second. Now I have shown, in paragraphs 23 and 24 of my essay “Die Kurve des Geldnutzens und die Theorie des Sparens” (*Zeitschrift für Nationalökonomie*, Band III, Heft III), that this opinion leads to the conclusion that the utility of the first dose of money is infinite.

27. When it is admitted that the utility of a first quantity of money is infinite, the consequence is that the *total utility* of all the money possessed by the individual is always infinite. And since the difference between two infinities is itself infinite, it appears to follow that the final utility, the difference between the two total utilities, is indeterminate. Such a consequence contrasts with all that we know and would shake the foundations of pure economics. Since the consequence is absurd, then the premise must be absurd. Hence the utility of a first dose of money cannot be infinite.

28. Against such reason one may argue as follows:

- (1) That man does not perceive the total utility but only its variations and these are finite quantities comparable to each other: people can always decide whether a certain use for the money is preferable to another, or is equivalent to it, and such decisions are in fact being made continually.

- (2) that the utility of things indispensable to existence is revealed at very exceptional times only, when absolute poverty is imminent: only then can a person be attacked by a pain which makes him throw his life away.

Hence, even admitting the infinite utility of a first unit of money (or of some units), it is enough to exclude it from the calculation and to begin the calculation with the second unit (or of the succeeding ones), exactly as we have done in Column 12 of Table I.

PART II

Goods of Increasing Utility

VIII. THE MINIMUM INCOME WHICH ALLOWS THE ACQUISITION OF A MINIMUM AMOUNT OF A GOOD WITH AN INCREASING UTILITY

29. After having discussed indivisible goods let us turn to a study of that by which we were attracted more than once: goods with an *increasing utility*. They are goods which I believe are rather uncommon, but the idea has given rise to controversies. The notion is of peculiar interest to me because it was the subject of my first published work in pure economics, thirty years ago.

Supposing all goods, except one, have utility infinitely divisible and decreasing, in such a way as to allow the construction of a quasi-complete curve, with continuous arcs and descending, of the final degrees of the utility of the money. Then there is a commodity (B), whose curve of the final degrees of utility is still continuous, but *first rising and later descending*. The primary curve of the final degrees of the utility of the money s employed in the acquisition of such a commodity will be first rising and then descending.

Strictly speaking these goods should be called "goods with increasing-decreasing utility." A commodity the intensity for enjoyment of which always increases with the increase of the quantity consumed is unimaginable; if such a commodity existed it would eventually absorb all the income of the individual. However, for the sake of brevity, instead of repeating every time "goods with an increasing-decreasing utility" we shall simply say "goods with an increasing utility" just as we say "a curve of the utility of money"

instead of always "a curve of the final degrees of the utility of money."

30. In order to decide whether or not it is advantageous to acquire a portion of a commodity with increasing utility, it is necessary to use an argument analogous to that which was used for the indivisible commodity, but a little more complicated, because the new commodity (B) is divisible. Hence the quantity which it is advantageous to acquire is not *fixed*, but varies from time to time and correspondingly the utility which is acquired varies. Consequently there is no utility U_b known *a priori* and with which the utility sacrificed could be compared.

Instead of the fixed utility U_b there is a minimum utility, corresponding to a minimum portion of the commodity (B) which it is advantageous to purchase, and there is a minimum income, below which it is not advantageous to buy even that minimum quantity of the commodity (B).

31. Let us take a numerical example. Let us leave as it is the quasi-complete curve of paragraph 8 and adopt as a primary increasing-decreasing curve that described as follows: the commodity to which it relates is not infinitely divisible, but only moderately so. As usual the lower line shows, in brackets, the ordinal numbers of the units of money spent, and the upper line the utilities of the respective units:

10,	21,	30,	18,	11,	6,	3,
(1st),	(2nd),	(3rd),	(4th),	(5th),	(6th),	(7th).

Looking at Table II we see, in column 3, that if the individual has an income $r = 7$, it is not advantageous for him to acquire a dose of the commodity (B). Indeed, if he wants to acquire 1 dose with the utility 10, he would lose the utility 19, which is greater; if he wants to acquire 2 of it with a total utility $10 + 21 = 31$ he would lose the utility $19 + 30 = 49$; if he wants to acquire 3 of it with the total utility $10 + 21 + 30 = 61$, he would lose $19 + 30 + 45 = 94$. It is useless to continue, because later the utilities of the successive units acquired become less and the loss increases *a fortiori*.

But when $r = 8$ (columns 4-5), the advantage of acquisition becomes apparent. The individual has two alternatives: either to acquire two doses of the commodity (B) (obtaining $10 + 21 = 31$ and sacrificing $11 + 19 = 30$, whence he secures a psychic rent = 1) or to acquire 3 doses (obtaining $10 + 21 + 30 = 61$ and sacrificing $11 + 19 + 30 = 60$, when the psychic rent likewise equals 1).

Hence the minimum income, which allows the acquisition of a commodity (B) with an increasing-decreasing utility to be initiated, is $r = 8$.

IX. THE COMPLETE CURVE OF THE ELEMENTARY UTILITIES OF MONEY

32. Now let us consider what happens as the income gradually increases. We know by intuition that the amount expended on the commodity with the increasing-decreasing utility ought to rise and the argument confirms this. In Table II (in which the italicized numbers are the utilities of the successive units of the money s) it is shown that as r increases both the money m , expended on goods with a decreasing utility, and the money s , expended on the commodity with an increasing-decreasing utility, tend alike to increase.

The results of the examination of Table II are here summarised in another little table.

TABLE III.

r	m	s	r	m	s
7	7	0	12	8	4
8	{6	{2	13	7	5
	{5	{3	14	8	5
9	6	3	15	8	6
10	7	3	16	9	6
11	7	4	17	9	7
				10	7

We have spoken of a *tendency* because the divisibility is not perfect, and with the increase of r , sometimes we must increase m and sometimes s . If the divisibility were perfect, every increase of r , however small, would be divided between an increase in m and an increase in s .

33. How have we proceeded with the formation of the complete curves of the elementary utilities of money (cols. 3 to 13 of Table II)?

Whatever income is given, for example $r = 11$, let us invert the quasi-complete curve, which thus becomes a curve of the costs and is recorded (in the second line) under the curve of the increasing-decreasing utilities (1st line).

10,	21,	30,	18,	11,	6,	3,	0.
0,	2,	5,	11,	19,	30,	45,	50.
(1st),	(2nd),	(3rd),	(4th),	(5th),	(6th),	(7th),	(8th).

We see that the acquisition of 4 units of the commodity (B) is advantageous and leads to a gain of utility, or a psychic rent, equal to:

$$(10-0) + (21-2) + (30-5) + (18-11) = 61.$$

While the utilities are increasing, it is not enough to compare the elementary utilities and the respective costs, because it is possible that the expense of the first units of money becomes advantageous when the successive utilities are added. This happens in the case $r = 8$, in the following system:

10,	21,	30,	18,	11,	6,	3,	0.
11,	19,	30,	45,	50,	60,	100,	∞ .
(1st),	(2nd),	(3rd),	(4th),	(5th),	(6th),	(7th),	(8th).

A first unit of money spent on (B) gives the utility 10 and costs 11. Hence the expense of one isolated unit is not advantageous. But the second unit yields 21 and costs 19, thus giving a positive rent ($= 2$) which compensates for the preceding negative yield and leaves a surplus. Since the utility 21 cannot be acquired without utility 10 being acquired first, it is advantageous to spend two units (utility $10 + 21 = 31$, cost $11 + 19 = 30$). A third unit would give 30 and cost 30; to use or not for (B) would be a matter of indifference.

34. Now let us examine more closely the conformation of the complete curves of elementary utilities: the curves which are described in columns 3 to 13 of Table II. They are composed ideally of two distinct arcs of two different curves. One, descending, is an arc of the quasi-complete curve. The other is an arc of the increasing-decreasing curve. The terminal utilities of the two arcs tend to be equal: they would be exactly equal (except in a case which will be illustrated later: see note to paragraph 34) if instead of an imperfect divisibility there were perfect divisibility.

X. THE CURVE OF THE TERMINAL UTILITIES AND THE CURVE OF THE MARGINAL UTILITIES

35. We can form the curve of the *terminal utilities* by using the method of taking the lowest terminal utility every time. Then we obtain the curve described in column 14 of Table II. It has a double point corresponding with the hypothesis $r = 8$. It is *not* descending throughout its course.

36. Finally we can construct the curve of the *marginal or final utilities*. (See column 12 of Table II.) Not even this is descending throughout its course.

It does not always coincide with the curve of the terminal utilities; however, as we shall see in a moment, the non-coincidence is due to the imperfect divisibility of the goods. For the rest the coincidence would not be perfect even in the case of divisibility if we were to discard the method of taking as the terminal utility of all the money r the lowest of the terminal utilities of the two amounts m and s .

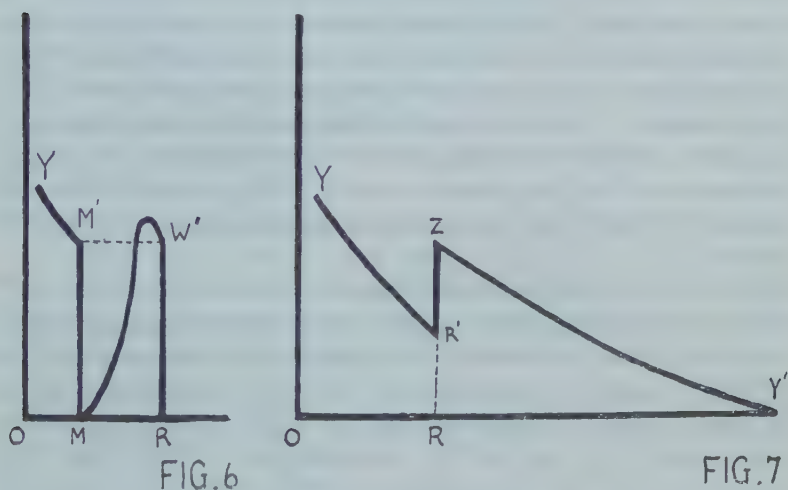
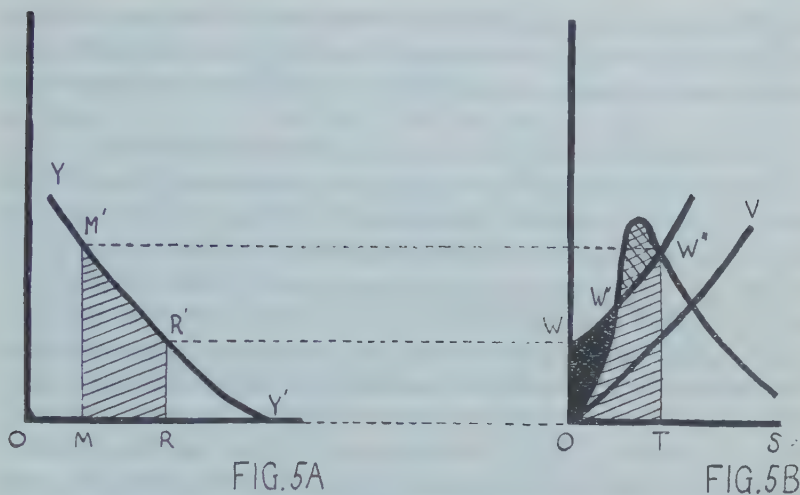
XI. THE CASE OF CONTINUOUS CURVES

37. The theory becomes more elegant if one admits that the two quasi-complete and increasing-decreasing curves are continuous. I have already developed this thesis in my essay "Puó una curva di domanda esser crescente?" Here I will limit myself to summarising it, slightly varying the exposition in the interests of clarity.

It is necessary to continue the quasi-complete curve YY' as far as the satiation income (Fig. 5a). Let us turn it about on the Y axis so that it becomes the OV of Fig. 5b, and then move it horizontally towards the left, until the black area and the doubly shaded area become equal. Let $WW'W''$ be the new curve. Let W be the point in which it intersects the Y axis and W'' the second point in which it intersects the increasing-decreasing curve. For the points W and W'' we draw the horizontals, which cut the quasi-complete curve in M' and R' . $\overline{OM}$ is the minimum income which is necessary for it to be advantageous for the individual to spend a certain *minimum quantity of money* in acquiring the commodity (B). This minimum quantity of money to be spent in acquiring (B) will be equal to $\overline{MR}$. When the individual possesses exactly $\overline{OR}$ he is indifferent whether to buy (B) or not. In fact, the shaded area of Fig. 5a is equal to the sum of the doubly and singly shaded areas of Fig. 5b. The analogy with Fig. 1 is apparent.

If the income is more than OR it is necessary to distinguish two cases:

- (1) the point W'' is on the descending arc or at most at the top of the maximum ordinate of the increasing-decreasing curve.
- (2) the point W'' is on the ascending arc of that curve.



38. Let us begin with the first case. The curve of the *elementary utilities* is obtained by drawing one after the other the arc YM' of the quasi-complete curve and the arc OW'' of the increasing-decreasing curve, as can be seen in Fig. 6. It takes the strange form $YM'MW''R$, already explained in my article "Puó una curva di domanda esser crescente?" It was only by error that in my former essay it was called the curve of the final or marginal degrees. All the rest of that essay can remain unaltered save for the changing of this definition.

As the money gradually increases the two arcs YM' and

MW'' are both lengthened, and consequently the point M as well as the point R of the curve is moved to the right, but each time the two ordinates $M'\bar{M}$ and $W''\bar{R}$ are equal to each other.

39. The curve YR'ZY' of the *terminal* utilities (Fig. 7) is composed of an arc YR', which is no other than the arc YR' of Fig. 5a, of a vertical segment $\bar{R}'\bar{Z}$ (the ordinate $\bar{R}'\bar{Z}$ of Fig. 7 is no other than the ordinate $\bar{M}\bar{M}'$ of Fig. 5a) and of an arc ZY' obtained by adding horizontally, after the manner of Walras, the two arcs M'Y' of Fig. 5a and W''S of Fig. 5b.

40. The same curve of the *terminal* utilities (or here the curve of the *terminal degrees* of utility) is also the curve of the *final or marginal* degrees of the utility of money. Indeed, once the curve YR'ZY' of Fig. 7 is traced in the manner indicated in the preceding paragraph, the total utility of any portion whatever of the income $\bar{O}\bar{T}'$ is represented by the area above it, outlined by this same portion, by the ordinate of its extremities and by the curve. If the initial ordinate is infinity, it is necessary for the horizontal segment to be initiated by a finite ordinate. In fact, after $\bar{O}\bar{R}$ the total utility is formed by successive increments which are always the sum of the small increments of the two areas 1 and 2 in Fig. 6 and before R the arc YR' (of Fig. 6 or 5a) is evidently a curve of marginal utilities.

41. Let us pass now to the second case where the point W'' falls on the *ascending* arc of the increasing-decreasing curve, as is shown in Figs. 8a and 8b. First of all let us consider the complete curve of the *elementary* utilities. It is obtained by drawing, one after the other, the arc YM' of the quasi-complete curve (Fig. 8a) and the increasing arc OW'' (Fig. 8b). The curve of the elementary utilities resembles then the curve of Fig. 6: the only difference is that the second arc (OW'' of Fig. 8b) is now increasing in its entirety, instead of being first increasing and then increasing like MW'' of Fig. 6.

As the money of the individual gradually increases from $\bar{O}\bar{R}$ (Fig. 8a) to $\bar{O}\bar{R} + \bar{T}\bar{B}$ (Fig. 8b) the new money goes *entirely* to the good (B) with increasing-decreasing utility (the individual obtains the utility TW''B'B of Fig. 8b instead of getting the utility MM'R'R of Fig. 8a) and therefore the last ordinates of the two arcs composing the curve of the elementary

utilities are no longer equal.¹ But when the income of the individual increases further, the income begins again to be distributed between the quasi-complete curve and the increasing-decreasing curve : then the final utilities are again equal.

42. Let us now pass to the curve of *terminal utilities*. This leads to a new question: how can we add together the *descending* arc $M'Y'$ of Fig. 8a and the *increasing-decreasing* arc $W''B'S$ of Fig. 8b? It is a problem to which the technique of Walras is inapplicable.

It is necessary to proceed in the following manner:

- (1) to reproduce in Fig. 9, after the arc YR' (equal to the arc YR' of Fig. 8a) the arc $W''B'$ of Fig. 8b, which arc is now called ZB' . In fact the way to obtain the maximum utility of the money $\bar{R}B$ (Fig. 9) is to spend it exclusively in the acquisition of (B), since each of its parts yields more utility than an equal portion of $\bar{M}'Y'$ (Fig. 8a), as we have just explained. Then we see that, while the income increases from $\bar{O}R$ to $\bar{O}B$ (Fig. 9), the money will be spent exclusively on the commodity (B) with increasing-decreasing utility. The curve of the terminal utilities is identical with the arc ZB' (Fig. 9).

Certainly the curve of the *marginal* utilities coincides with the curve of the *terminal* utilities, that is, with the arc ZB' , because, when the quantity of money increases gradually from OR to $\bar{O}B$, the utilities of the increments of money are determined by means of the arc ZB' .

- (2) Then we add, in the ordinary way, the two arcs $M'Y'$ and $B'S$ of Figs. 8a and 8b, obtaining the arc $B'Y'$ of Fig. 9.

Thus is defined the curve of the terminal degrees, which is also the curve of the final or marginal degrees. It is the $YR'ZB'Y'$ of Fig. 9 which is different from the curve of Fig. 7 in having the hump ZB' .

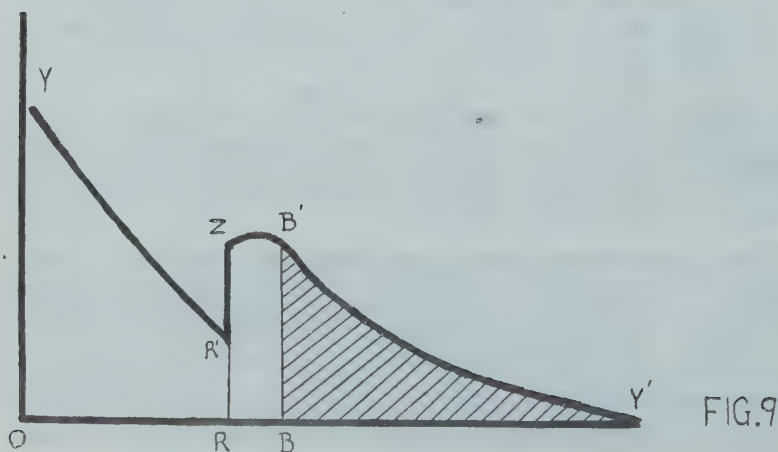
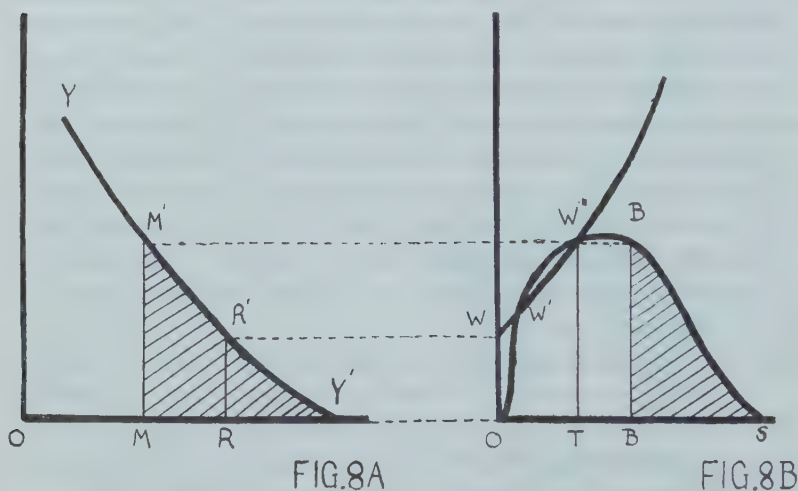
¹ This is the case referred to in paragraph 27, in which the two arcs, which are combined in the composition of the complete curve of the elementary utilities, have unequal terminal utilities. In fact when the income is between $\bar{O}R$ and $\bar{O}B$ (Fig. 9), each complete curve arises from the composition of two arcs. One, formed by the quasi-complete curve, remains unchanged (it is the arc YM' of Fig. 8a) and hence has an unchanged terminal utility (the ordinate $\bar{M}\bar{M}'$). The second arc, formed by the increasing-decreasing curve, has one extremity in the point of Fig. 8b, whilst the other extremity passes the arc $W''B'$ of Fig. 8b. Hence its terminal utility is variable.

XII. CONCLUSIONS

43. Let us sum up the results of our investigation.

Léon Walras has shown us how to trace the curve of the final or marginal degrees of the utility of money, but his theory is limited by assuming that the commodities are infinitely divisible and have decreasing utilities. Here the object of the inquiry is wider, first an *indivisible* commodity (C) and then a commodity (B) with an *increasing-decreasing* utility being considered. Our conclusions are as follows:

(I) *Definition of total utility.* Given a certain amount of money r , the individual distributes it between various



commodities for immediate consumption (saving is consequently excluded here) in such a way as to obtain the *maximum utility* from it. This maximum utility U is called the *total utility* of the money r .

(2) *Definition of marginal or final utility.* When the amount of money r increases by a finite but smallest possible quantity Δr , the total utility U of the money increases by a quantity ΔU which is called the *marginal or final utility of the income $r + \Delta r$* .

(3) *Definition of the degree of marginal or final utility.* On the hypothesis that the two increments (Δr of the income and ΔU of the total utility) are infinitely small, and their quotient

$\frac{\Delta U}{\Delta r}$ tends to a finite and determinate quantity with the

progressive diminution of the two increments, this is called the *final or marginal degree* of utility. Geometrically it is the height of the infinitely small rectangle which has an area ΔU and a base Δr .

(4) *Definition of the curve of the marginal utilities and of the marginal degrees of the utility of money.* The curve of the *marginal utilities* is one which for each income (abscissa) indicates the utility of the last small increment of income. Such a utility is indicated by a rectangle, hence the curve of the marginal utilities is represented by a succession of rectangles. The curve of the *marginal degrees* is one which for each income (abscissa) shows the marginal degree of utility (ordinate), and therefore is a curve of continuous arcs.

(5) *Definition of the elementary utilities of money.* The total utility U obtained from a fixed income r , can be analysed by dividing the fixed income r among various primary expenses, and calculating the utility of the separate units of money of each expenditure. The result is a translation into terms of utility of a *family budget*. If one of these primary expenses does not absorb a whole number of units of money, but includes a *fraction*, this will be represented by a rectangle with a base proportionately smaller than that of the ordinary rectangles. If a commodity is *indivisible*, the indivisible rectangle could ideally be subdivided by as many vertical cuts as the units of money (plus any remaining fraction) contained in the price.

(6) *Definition of the curve of the Elementary Utilities of Money.* By arranging in a descending order, as much as possible, the utilities of the individual units and fraction of

the money constituting a given income r , the curve of the elementary utilities of the income r is obtained. This curve is different from the curve of the marginal utilities defined in No. 4 for two reasons:

- (a) because the bases of the rectangles in the curve of the elementary utilities are the *co-existing* portions of *one* given income r , while in the curve of the marginal utilities the bases are the successive increments to an indefinitely small initial income.
- (b) because the bases of the rectangles in the curve of the elementary utilities can also be *unequal*, in so far as they are the bases of the indivisible rectangles and in so far as they relate to the utility of *fractions* of a unit of money.

(7) *The form of the curve of the elementary utilities of money.* The curves of the elementary utilities of money are descending if the commodities are all *divisible* and have a *decreasing utility*. They have the form shown in Figs. 2a, 2b, and 2c when a single commodity is *indivisible* and all the others are infinitely divisible and of decreasing utility. They have the form shown in Fig. 6 when all the commodities are infinitely divisible but one has an *increasing-decreasing utility*, while the others have a decreasing utility.

(8) *Definition of the terminal utilities (and of the terminal degrees of utility).* We call the *terminal utility* (or respectively the *terminal degree of utility*) of an income r the *minimum elementary utility* (or respectively the *minimum degree of utility*) of that income.

(9) *Definition of the curve of the terminal utilities (or of the terminal degrees of utility).* We describe as the *curve of the terminal utilities of money* a curve which shows for each amount of income (abscissa) its terminal utility. We describe as the *curve of the terminal degrees of the utility of money* a curve which shows, for each amount of income (abscissa), its terminal degree of utility (ordinate).

(10) *The three curves in the Walrasian hypothesis.* The curve of the *terminal utilities* coincides with the curve of the *marginal utilities* and with the curve of the *elementary utilities of the satiation income* whenever all the commodities are divisible and of decreasing utility.

(11) *The three curves when a commodity is indivisible.* If all

the commodities are divisible and of decreasing utility, except one which is indivisible, then the three curves diverge and we have:

- (a) the curve of the *elementary utilities*, of the form shown in Fig. 2c.
- (b) the curve of the *terminal utilities*, of the form shown in Fig. 3.
- (c) the curve of the *marginal utilities*, of the form shown in Fig. 4.

(12) *The three curves when a commodity has an increasing-decreasing utility.* If all the commodities are infinitely divisible and have decreasing utilities, except one which has increasing-decreasing utility, then:

- (a) *the curve of the elementary utilities* will be decreasing until the income reaches a certain amount $\overline{OR}$ and afterwards it will have the form shown in Fig. 6.
- (b) *the curve of the terminal utilities* and that of the *marginal utilities* will coincide and both will have either the form shown in Fig. 7 or that shown in Fig. 8.

Taxation and the Relative Prices of Factors of Production

By FREDERIC BENHAM

ONE of the most important consequences of the raising and spending of taxes is the resulting change in relative factor-prices. Yet writers have paid surprisingly little attention to this. When considering the effects of a tax upon the production or sale of a particular commodity, they have considered mainly the effect upon the price of that commodity. If the amount of any factor employed in producing a particular commodity is small relatively to the total supply of that factor, the effect of such a tax on relative factor-prices may be negligible; but when this is not so, or when a number of commodities are subjected to such a tax, it may be of great importance. Similarly, discussions of the effects of an income-tax have centred around such questions as whether income-tax enters into commodity prices, whether it discriminates against saving, and whether it stimulates or checks the supply of work and saving. Little attention has been given to its effect upon relative factor-prices.

In order to consider briefly how the raising and spending of taxes affect the relative prices of factors of production, I shall make a number of simplifying assumptions. I shall assume that only two commodities are or can be produced—say wheat and steel. I shall assume that there are only two factors—say land and labour—and that any unit of land is a perfect substitute for any other unit of land in the production of either commodity, and similarly that any unit of labour is a perfect substitute for any other unit of labour in the production of either commodity. I shall further assume that tastes and knowledge and supplies of factors remain constant during the period under discussion, that there is perfect competition, and that the economy is in equilibrium before the tax is imposed and reaches a new equilibrium after the tax has been imposed. The problem concerns the relative prices of land and labour in

the new equilibrium as compared with their relative prices in the old equilibrium.

Land and labour may be (1) not substitutable for one another or (2) imperfect substitutes for one another or (3) perfect substitutes for one another. Only the second case is of practical importance, but for the sake of completeness I shall consider briefly the other two also.

The first case is that of fixed proportions between the factors in the production of both wheat and steel. Let us suppose that wheat employs a bigger proportion of land to labour than steel employs. If neither factor is a free good either before or after the tax, then on our assumptions the output of both wheat and steel will be exactly the same in the new equilibrium as in the old.

Suppose that the Government imposes a tax of $\frac{1}{r}$ th of the output of wheat, either itself consuming the wheat or exchanging some or all of it on the market against steel. Let us choose our units in such a way that before the tax one unit of wheat exchanges against one unit of steel. Suppose that A land and B labour are required to produce a unit of steel. Then more than A land, say $A + H$, and less than B labour, say $B - K$, are required to produce a unit of wheat. It follows that before the tax the price of H land equals the price of K labour.

The effect of the tax upon the relative prices of land and labour will depend upon the change in the relative prices of wheat and steel, resulting from the changed distribution of demand, in the new equilibrium. There is no *a priori* reason why the relative prices of wheat and steel should change in one direction rather than in the other. If they do not change at all, so that one unit of wheat still exchanges against one unit of steel in the market, then the *net* receipts of the factors of production engaged in producing $\frac{r}{r-1}$ units of wheat will now equal the receipts of the factors of production engaged in producing one unit of steel, since $\frac{1}{r}$ th of the wheat is paid in taxation. Hence H land will now be worth less than K labour. It will now be worth only K minus $\frac{1}{r}$ th of the price of A land plus B labour (that is, of the price of a unit of steel).

Clearly the price of wheat in terms of steel must rise by sufficient to enable one unit of wheat to purchase $\frac{r}{r-1}$ units

of steel in order that the relative prices of land and labour may remain unchanged. For example, if the tax is 20 per cent., r is 5, and one unit of wheat must purchase $1\frac{1}{4}$ units of steel. If it purchases more than that, the price of land will have risen relatively to the price of labour (owing to the changed distribution of demand, which has pushed up the relative price of wheat) as a result of the taxation and its expenditure. If, as is more likely, it purchases less than that, the relative price of land will have fallen. The higher is the tax—that is, the smaller is r —the more would the price of wheat have to rise in terms of steel in order to counteract its unfavourable effect on the relative price of land. It will be observed that the real income of a unit of labour may actually rise in consequence of the tax, despite the fact that the Government takes the equivalent (in wheat or steel or both) of $\frac{1}{r}$ th of the output of wheat away

from the factors of production *qua* factors of production.

Any form of taxation of individuals as such, and not in their capacity of wheat-producers or steel-producers, would affect relative factor-prices solely through the changed distribution of demand due to the taxation and its expenditure. If the price of wheat rose in terms of steel, land-owners would gain relatively to labourers, and conversely if it fell.

The third case, that in which land and labour are perfect substitutes for one another in all uses, is very simple. Nothing except a tax on the employment of land, or of labour, can change the relative prices of land and labour. They are to all intents and purposes not two factors but one single factor.

Of course, neither the first case nor the third case would ever arise in practice. The only case of practical importance is the second, that in which the proportions of the factors engaged in producing either commodity can be varied but in which the two factors are imperfect substitutes for one another. In order to discuss this case I shall make yet another assumption. I shall assume that in the production of either wheat or steel, over the relevant range, there are diminishing marginal returns to either factor. I shall assume, that is, that if additional labour is combined with a given amount of land, or if the amount of labour is increased by a greater percentage or

diminished by a smaller percentage than the amount of land, in the production of either wheat or steel, the marginal physical productivity of labour will be less in that industry than it was before, while the marginal physical productivity of land in that industry will be greater than it was before. The same applies, of course, if the words "land" and "labour" are reversed.

It follows directly from this and our other assumptions that if in the new equilibrium the production of wheat has expanded and that of steel contracted the price of land will have risen relatively to that of labour. If the opposite has occurred, the price of land will have fallen relatively to that of labour. The change in the relative prices of wheat and steel will have no direct relevance to the result. The sole criterion will be which industry has expanded and which contracted. For both land and labour are employed in both industries, so that the earnings and the value of the marginal product of a unit of land (or of labour) will be the same in both industries.

Suppose that wheat production has expanded. This implies that more labour than before is combined with a unit of land in both industries. This must be so if supplies of land and labour remain constant and there is sufficient competition to ensure that all the land and all the labour are employed (unless labour becomes a free good—which would merely be an extreme case of a fall in the relative price of labour). But this in turn implies that the marginal physical productivity of land is greater, and of labour is less, than it was before, in both industries. Therefore the price of labour must have fallen relatively to the price of land, in order to induce the landowners to alter the proportions sufficiently to employ all the labour. The extent of the relative fall will depend on the extent of the change in the relative marginal physical productivity of land and labour: the more imperfect a substitute is labour for land, the greater will be the relative fall.

This conclusion holds good whether the tax was imposed upon wheat or upon steel or whether it was a general tax such as an income-tax or a sales-tax. Indeed, it holds good whatever the circumstances (for example, an expansion or contraction of foreign trade) which involve a change in the distribution of demand which makes it profitable to produce more wheat and less steel than before. Of course, a tax on the production of wheat, and not of steel, is more likely to cause a contraction than an expansion of wheat-growing. It will cause an expansion

only if the relative increase in the demand for wheat is more than sufficient to offset the tax. And a bounty is likely to work in the opposite direction. But when we contemplate the new equilibrium, and contrast it with the old, the only criterion is which industry has expanded and which contracted.

It remains to ask whether this conclusion, reached under several simplifying assumptions, has much relevance to the real world. I think it has. The fact that many commodities, and not only two, are produced, can be allowed for by grouping together all the industries which have expanded, on the one hand, and all those which have contracted, on the other hand. In most countries, there is not sufficient monopoly in either the demand for factors or the supply of them or in the production of commodities seriously to disturb our conclusion. It is quite easy to modify it to cover changes in the supply of factors which occur in consequence of the tax and its expenditure. If the supply of the factor whose relative price has fallen increases in consequence of that fall, the effect of the tax on relative factor-prices will be enhanced ; and similarly if the supply of the other factor decreases. The opposite changes will of course lessen the effects of the tax in this respect. The " production function " usually behaves more or less in the manner assumed over the relevant range ; the changes in output due to taxation will seldom be sufficient to make possible important economies of scale in an industry which has expanded, or to compel the loss of them in an industry which has contracted. The only difference between the real world and our assumed economy which may substantially damage the validity of our conclusion is the existence of numerous factors (in the sense of groups of homogeneous units which are perfect substitutes for one another in all uses). Nevertheless there is quite a high degree of substitutability between, for example, different grades of arable land or of unskilled labour. It has long been recognised, for example, that agrarian protection or a bounty on agricultural production will probably raise the price of agricultural land in the country in question relatively to the prices of other factors. Our analysis enables us to say that this will happen, under competition, if, but only if, agriculture within that country expands relatively to other industries which use a smaller proportion of land to other factors than does agriculture.¹

¹ I should perhaps add a few words about a factor which is completely specific to the production of a particular commodity. For purposes of illustration, let us suppose that

this factor consists of homogeneous acres of land suitable only for the production of sugar beet, that no other land can produce sugar beet, and that this sugar beet land is divided among a large number of owners who compete with one another and who hire co-operating factors. Let us call the co-operating factors labour.

Now suppose that a tax of so much per ton is imposed upon the production of sugar beet. All the sugar beet land must still be used, unless it becomes a free good. The situation which confronts each owner of sugar beet land immediately after the tax is imposed is that the marginal physical productivity of labour remains the same but the *net* value of its marginal product is diminished by the tax. He will therefore employ less labour, thus reducing the output of sugar beet. This will tend to raise the market price of sugar beet. It may also diminish the price of labour; this will of course be more likely if a relatively large amount of labour is dismissed. Thus the tax may be borne partly by consumers of beet sugar and partly by labour. In the new equilibrium, the net value of the marginal product of labour in the sugar beet industry will equal its price. In other words, any owner of sugar beet land will employ so many men that the price of the marginal physical product of a man less the tax upon it equals the man's wage. If we suppose that the industry is relatively small and wages are not altered, we can say that if the amount of labour employed in the industry is just the same as before the tax the owners of the specific factor have not suffered by the tax; if it is less than before, they have suffered; and if it is greater they have gained. They will clearly suffer unless they can sell the same amount of sugar beet as before at the old price plus the tax; and this is possible only if the demand increases in consequence of the tax and its expenditure; the greater the tax the greater must be the compensating increase in demand.

Local Public Debt in England and Wales¹

By URSULA K. WEBB

ONE of the lessons which the present depression has most thoroughly inculcated is the greatly increased weight which a public finance system, normally borne with ease, acquires as the result of a substantial price fall. The peculiar monetary and political conditions of the post-war decade led to a more than normal development of public investment, and hence it is not surprising that to-day governments and municipalities, from Vancouver to Athens, are faced with an acute problem of indebtedness and illiquidity. In this country, however, more attention has been directed to the problems arising from the enormous dead-weight debt which was the legacy of war finance, than to those concerning local debts held against tangible assets. When local finance has been in the limelight, it has been in respect of the crisis of the rating system. It is true that the high rate poundages of the post-war period have generally been caused by expenditure on current account, particularly, of course, for Public Assistance. Where they have been the result of borrowing it has been for this purpose rather than for investment in durable equipment. Nevertheless, the debt problem is also ultimately a rate problem, since debt service must be met from rates, as far as it is not covered by grants from the Exchequer. There are, moreover, fairly objective limits to rateable capacity—as contrasted with the almost purely psychological limits of taxable capacity in general—since a local rate is a tax that can be avoided by removal to a more favoured district. Hence in so far as public investment is not in respect of self-balancing or paying services, the prospects of its continued expansion are conditioned by the heritage of the past. An examination of the debt position²

¹ The inquiry is confined to England and Wales because the Scottish statistics are not published in sufficient detail to make comparable calculations.

² The Ministry of Health Report for 1932 contains a very useful historical account of Local Debt.

and the borrowing policy of the local authorities of England and Wales is, therefore, necessary to ascertain whether past expansion has affected the equilibrium of local finance.

Two further reasons may be suggested which make the examination of local debt of particular interest at present. In the first place, many of the services for which local authorities incur debt are identical with those provided by more or less controlled public utility companies, and a comparison of the relative expenses of long-term financing to the two types of investment is a necessary element in estimating their respective economic advantages. Secondly, in any scheme of Public Works as a remedy for unemployment, the services, especially the non-paying services, for which local authorities require to borrow, necessarily play an important part.

Charts I and II illustrate the expansion of local authority activity over a period extending from 1895 to 1930. Table I (on which Chart I is based) gives in greater detail the growth of debt in respect of various services. It is evident that the expansion of investment of a durable nature is part of a more general movement, and that it is one which was well established before the War. The effects of the completion of the representative system of local government by the Acts of 1888 and 1892, and of low interest rates in the 'nineties, are very evident. Nevertheless, the greatest expansion has been in the post-war period. This becomes particularly apparent when total expenditure is expressed in 1913-14 prices (heavy lines, Chart II). Expenditure of the last quinquennium continues the trend of the beginning of the century, but at an accelerated rate.

In Table II the growth of debt is measured against a number of other indices. Thus in 1919-20 total gross debt was about two and a half times assessable value: in 1929-30 it was nearly four times as great. To some extent this altered relation must be ascribed to the time-lag in bringing valuations into line with the general price rise, a lag which not infrequently forced rate-payers under progressive authorities to subsidise expenditure in districts where the rating authority was slack, until comparative uniformity was secured under the Rating and Valuation Act, 1925. It is plain, however, that in general the increase in values did not keep pace with the growth of indebtedness. The effect can be seen in the rise of loan service from a percentage of rate expenditure of 33.3 in 1919-20 to 56.3 in 1928-9, just before derating came into force. The great

increase in the weight of loan service, however, is partly due, as we show below, to the high rates at which it was necessary to borrow in the immediate post-war years. It must be admitted that the figure as it stands is somewhat misleading, since, according to the Ministry of Health calculation in 1931,¹ by means of subsidies and grants towards interest payment, the average debt service actually falling to be met out of rates is reduced to an amount of the order of 2s. 3d. in the £. Taking the towns quoted in Table IV_B below as typical, this is equivalent to less than 20 per cent. of the rates shown. In this case, however, just as with rates themselves, a crude average is apt to be misleading, since it is often those localities where rate poundage is highest on current account that have been impelled or induced to expand largely their permanent investment, and hence now have a debt burden in rates higher than the average. It will be observed that expenditure per head grew from £7.5 in 1919-20 to £10.8 in 1929-30. When the fall in prices during the period is taken into account this means a very substantial increase in the "real" burden to be met from taxation. Finally, if (in Table III) we compare the total amounts of new stock exchange borrowing and Public Works Loan Board mortgages with total non-government borrowing on the stock exchange, we get a rough measure of the relative importance of public and private investment in the post-war period. Although public borrowing is usually much lower, where a period of expansion in public investment synchronised with a stock exchange slump, the two may become of equal importance.

A comparison of the year-to-year movements in this table clearly shows that the motives actuating the two series are fundamentally different, notwithstanding the fact that in 1929 some 35 per cent. (or nearly 70 per cent. if we include Housing) of the debt was held against Trading Services, in which it might be supposed that the economic motive played an important part. In general, local authorities cannot borrow without sanction, direct or indirect, from the Ministry of Health. Thus the central government is in a position to dictate the tempo of public investment pretty effectively. This can be clearly seen in the drop of stock exchange borrowing from £41.7m. to £8.0m., and of P.W.L.B. loans from £18.8m. to £8.8m. in connection with the economy measures of 1931. The expansions attributable to the Addison, Chamberlain and

¹ See p. 204, note 2.

Wheatley Housing Acts are also clearly traceable. It is easy, however, to exaggerate the extent and the rate at which local investment reacts to stimulus in the form of Exchequer subsidy. Prolonged negotiations and exceptionally favourable terms were necessary before the municipalities were willing to spend anything on Housing at the end of the War, and for certain road schemes it has been found necessary to give grants of as high as 80 per cent. in order to get the work done. The Ministry has a much more powerful weapon for checking expansion, by withholding permission for borrowing, than it has for encouraging an upward movement. These considerations are particularly relevant to the prospects of a Public Works expansion. The fact that expansion of investment in different lines depends primarily on Exchequer assistance implies that the task of co-ordinating development of different services is taken over by the Ministry. Yet without minutely examining the position in each town as applications for borrowing sanction come up, the Ministry is not in a position to do this effectively. The control as at present exercised seems to be little more than a calculation of the outstanding debt in relation to that against trading services and to rateable value as a whole. This takes no account of relative development, and little even of the composition and time-structure of the debt which is of vital importance in estimating its burden. Hence the ultimate responsibility for planning their investment still rests with the local authorities, although they have not the matter completely under their control.

Of greater importance for the present inquiry, however, is the consideration that on the cost or borrowing side the local authorities are completely their own masters in determining the use they make of the different borrowing opportunities, and of the distribution of their expenditure between loans and current receipts. On this side of the question the determinants should surely be purely economic. The greater the skill of the Borough Treasurer in arranging his borrowing, the larger the amount of the ratepayers' money available for services where non-economic motives are naturally dominant.

In general, for most local authorities, there is not much scope for variation of the amounts paid for by loan and current account respectively, since the investments for which loans are incurred are usually discontinuous and large in relation to the total resources of the Council. Where the work is of a recurrent nature, even if it is in respect of highly durable equipment, there is a

very strong argument for paying out of current receipts, since the total sum will be smaller by the amount of the loan service otherwise incurred. It is worth noticing that the permanent investment of local authorities in so far as it is financed by grants and subsidies from the central government is, in fact, all financed out of current taxation, whatever the practice of the local authority. The argument for "paying as you go," where possible, is the stronger when the investment is of a social nature which is never expected to be self-balancing. On the other hand, the financing of even relatively non-durable investment out of loan may be a desirable depression policy in order to increase expenditure rapidly in the short run. It is not possible to ascertain in general how far local authorities distribute their expenditure between rates and borrowing on any definite policy. It is more than probable that the individual preferences of the Town Clerk and the Borough Treasurer are predominant. It is worth noting, however, that the L.C.C. some years ago passed a resolution charging all capital expenditure unless part of another scheme, not exceeding £5,000 p.a., to current account.¹

On the question of the distribution of borrowing between the different sources available we can, however, get a pretty definite general view, which will enable us to estimate how far existing debt is in fact a burden on the present and future. Briefly the sources open to local authorities are:

1. For short-term loans: The Banks, or (occasionally) by bills of three-five months' maturity.
2. For medium-term loans: Mortgages raised on the Rates, either with companies, more particularly Insurance companies and Building societies, and with individuals. Some use has been made of the stock exchange for the issue of medium-term Housing bonds.
3. For long-term loans: For the larger authorities the stock exchange, or mortgages, for the smaller, mortgages principally from the Public Works Loans Board, from Insurance, etc., companies, or from other local authorities (thus the smaller authorities enjoy indirectly the advantages of stock exchange flotation). The Ministry of Health's calculation of the distribution of stock and mortgage debt among the different categories of local authorities at March 1930 is shown

¹ Cf. F. Hunt, "Practical Limits of Rateable Capacity," *Public Administration*, June 1932. The L.C.C. also set aside £250,000 p.a. out of rates for Capital Expenditure.

in Table IV A.¹ It will be observed that the different types of local authority make use of the stock exchange in descending order of their wealth and importance.

If the rates at which stock was issued and at which P.W.L.B. mortgages were granted are compared with the rates at which industrial debentures were raised (Table III), it will be seen that there is a decided differential in favour of public borrowing. Further, the larger authorities are in a slightly better position than the smaller.² Since, as we shall see below, the P.W.L.B. loans are, on the whole, more rigid than the stock borrowing, the conclusion is strengthened. But if we compare instead of all industrial debentures the position of public utility companies providing the same services as the local authorities (such as gas, water and electricity), the differential in favour of public investment is considerably reduced. Although the public utilities do not, of course, rank as trustee securities as do practically all issues of local authorities,² they are able to raise stock at rates very little higher and have additional advantages in being able to borrow on equity terms—a convenience of which the electric light companies in particular made full use in the 1928-9 stock exchange boom—and of being under less strict regulation as to sinking fund and reserve requirements.

The period for which long-term loans and mortgages are arranged has depended largely on tradition, and on the theory that the period of the loan should roughly correspond to the life of the equipment for which it was raised. This rule works all right when interest rates are likely to show little fluctuation over the period of borrowing, but in the early post-war period it continued to be the practice to arrange mortgages for Housing for the longest possible period, notwithstanding that the rate of interest was over 6 per cent. The effect of this is seen in the percentage distribution of the length of P.W.L.B. mortgages (Table Va). After 1922 the proportion raised for the longest period declined rapidly, and the borrowing under the Chamberlain and Wheatley Acts seems to have been determined more by the length of the subsidy than by the life of the equipment. The L.C.C. alone made any considerable use of the privilege of issuing Housing bonds,³ which were in

¹ Ministry of Health Report, *loc. cit.*

² A great addition to the number of authorities whose stock is thus eligible occurred in the immediate post-war years through the extension of the privilege to all authorities granted permission to issue Housing Bonds.

³ £5.9m. were issued by the L.C.C., of which £4.9m. mature by 1937.

the existing market conditions probably the most economical method of financing. With a few exceptions British municipalities make little use of medium-term borrowing, and many of them seem hardly to have realised the burden which long-period borrowing at high rates would subsequently entail. Towards the end of the decade, however, an effort is discernible to concentrate more of the debt in medium-term mortgages, and to insert a "break" clause in mortgage contracts, to allow for alterations in interest rates.

A notable exception to this neglect of medium-term borrowing is the case of Manchester and a few other towns in the North which follow its example, where nearly the whole of the debt is held in mortgages of three, five, seven or ten years' nominal duration by the citizens of the locality. The peculiar advantages of this system are that for the citizen it offers an ideal outlet for small savings while giving him a real stake in the good government of the town; and for the local authority the only expenses involved are the maintenance of a small office staff, and the 2s. 6d. contract stamp per transaction. There is the further accidental advantage from the municipalities' point of view that the citizen frequently continues his mortgage after the date of its nominal expiration, either from inertia or from local patriotism, while the town always has the option of paying it back with six months' notice, so can easily convert high-rate mortgages.

The want of uniformity and the very various information available in municipal accounts, makes it impossible to get satisfactory details of the distribution of long- and short-term debt. Table IV_B attempts to give some information for a number of towns which may be regarded as typical. It is evident that there is very great variation in the financial position, some at least of which must be attributed to varying skill of financial management.

In Table V (*a* and *b*) we examine the time-structure of the long-term debt. It is not possible to get details for all long-term mortgages, but probably those of the P.W.L.B. may be considered as typical, and in any case they form a substantial proportion of the whole. The greater part of this debt is on the annuity principle, so that it is continuously being paid off. Apart from this the P.W.L.B. debt is completely rigid, since there are no break clauses, and premature repayment is only allowed on terms so onerous as to make it useless. The reasons for this lie in peculiarities of the Local Loans Fund, from which

the resources of the P.W.L.B. are principally drawn, and which is an institution *sui generis* in the National Debt. Public issues of Local Loans stock are made from time to time as required, but always at 3 per cent. When interest rates are high they must consequently be issued at a substantial discount. Before the war to offset this discount a surplus was built up out of the excess of interest payments by borrowers over the interest due to the stock-holders, but since the war this excess has been used to finance further investment, so that the discount amounted by the end of 1934 to £142m. Since the total stock outstanding was at that date £429.2m., it is the largest block of central government debt giving a high yield on the issue price not yet converted. A conversion would be most advantageous to the local authorities, especially if it were followed by a lightening of the burden of the early post-war loans. It is, however, in the nature of things not easy to convert a nominal 3 per cent. issue, and in the case of Local Loans stock, which is repayable at any time on a month's notice, there is an additional factor tending to keep its price low relatively to other gilt-edged securities on the market.

From Table V (*b*) it will be seen that, although the amounts of the high-rate stock debt repayable before 1940 are not very substantial, the largest block of 6 per cent. falls within that period, and the bulk of the post-war borrowing matures before 1955. The period is thus somewhat shorter than the worst of the P.W.L.B. loans. The prospects of the conversion of long-term debt compare, however, somewhat unfavourably with the position of private investment, since the heavy borrowing in the "restocking" boom of 1920-1 was mostly redeemable within fifteen years—hence the extraordinary amount of conversions which the stock exchange has witnessed since 1933. On the other hand, much of the pre-war municipal borrowing is now maturing, and can be renewed on terms at least as favourable as those on which the loans were originally raised. Moreover, the possibilities of conversion are not confined to the long-term debt. The large number of municipal issues of 1933 and 1934¹ were of necessity principally of the nature of conversions, since there was at least a partial embargo against the raising of new money for the expansion of investment. It seems that local authorities have been making good use of an exceptional opportunity to consolidate their debt position by funding their floating debt on favourable terms, and

¹ See note ii to Table V (*b*).

whatever may be the arguments against this procedure as far as the central government is concerned, there can be no doubt that since local authorities participate in the chance of very cheap short-term financing on the bill market only to a very small extent,¹ it is entirely to their advantage to fund their debt when rates are low.

Apart from any question of the expansion of public investment as a depression policy, a time like the present, when interest rates are exceptionally low, is naturally one in which it will pay local authorities to finance their long-term capital requirements. We must now attempt to answer the question: Has the result of borrowing in the past left a position which would make it wiser for municipalities to avoid further expansion at present? Considerable as has been the expansion in the post-war years, the answer seems to be an unconditional negative. In the first place the actual weight of loan service falling on Rates on the average is so reduced by Exchequer contributions that it cannot in itself be regarded as a strain on the Rates. Secondly, if we include Housing, more than half the debt is held against services which are potentially capable ultimately of paying for themselves. Although it appears that municipalities in their borrowing policy followed too blindly methods and criteria inherited from a period when stability of prices and interest rates, and the small amount of total loan debt, made attention to economic conditions relatively unessential, this has had no disastrous consequences. The advantage of a central national government behind the local authorities, as contrasted with the limited resources of provincial or state governments, is very apparent if we compare the experience of British municipalities with American, Canadian or German towns. Even if the Ministry of Health's control of the expansion of public investment is based on fairly superficial data, the mounting trend of debt in particular localities is under observation, and additional contributions, or some other form of central assistance or control, can be applied before it is too late. This is not to deny that, as argued above, the central government has itself been responsible for encouraging some local authorities to expand beyond their resources; or to maintain that the methods of central assistance so far applied (for instance the weighted formula grant of the Local Government Act, 1929) are sufficient to solve

¹ Cf. R. J. Truptil, *Le système bancaire anglais et la place de Londres* (Paris, Sirey, 1934), p. 210 ff.

the financial difficulties of English local government. But there is some guarantee that local investment cannot proceed beyond a certain point without the sanction of the whole body of taxpayers, expressed in Parliamentary appropriation votes. The confidence of the investing public in the municipalities was strikingly illustrated in the autumn of 1931, when municipal stocks stood at a premium over the securities of the national government, and as a whole this confidence was undoubtedly justified. This is not the place to argue the social and economic implications of the increase of public investment, whether central or local, relatively to private. But if the rate of expansion established in the post-war period is to continue, local authorities should now be in an excellent position for profiting from an exceptionally favourable economic situation. They have gained their experience in a period of rapid change and of much social and political difficulty, and they have emerged without contracting burdens which can be regarded as a serious menace to further expansion.

CHART I

Outstanding Gross Debt of Local Authorities (England and Wales) at five points of time (in £ 100m.).

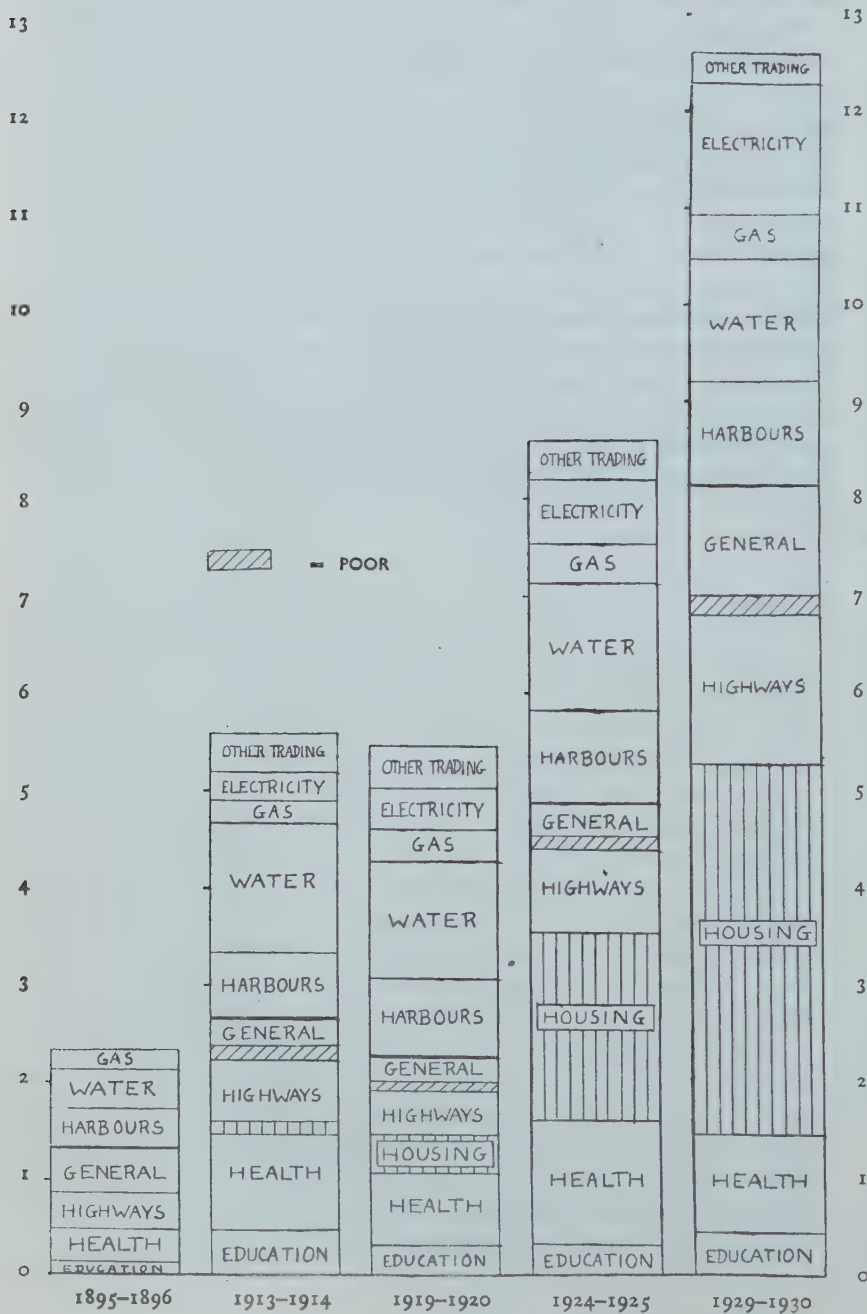


CHART II.

Expenditure of Local Authorities (England and Wales), other than out of Loans, at five points of time (in £m.).

Heavy lines indicate total expenditure expressed in 1913-14 prices.

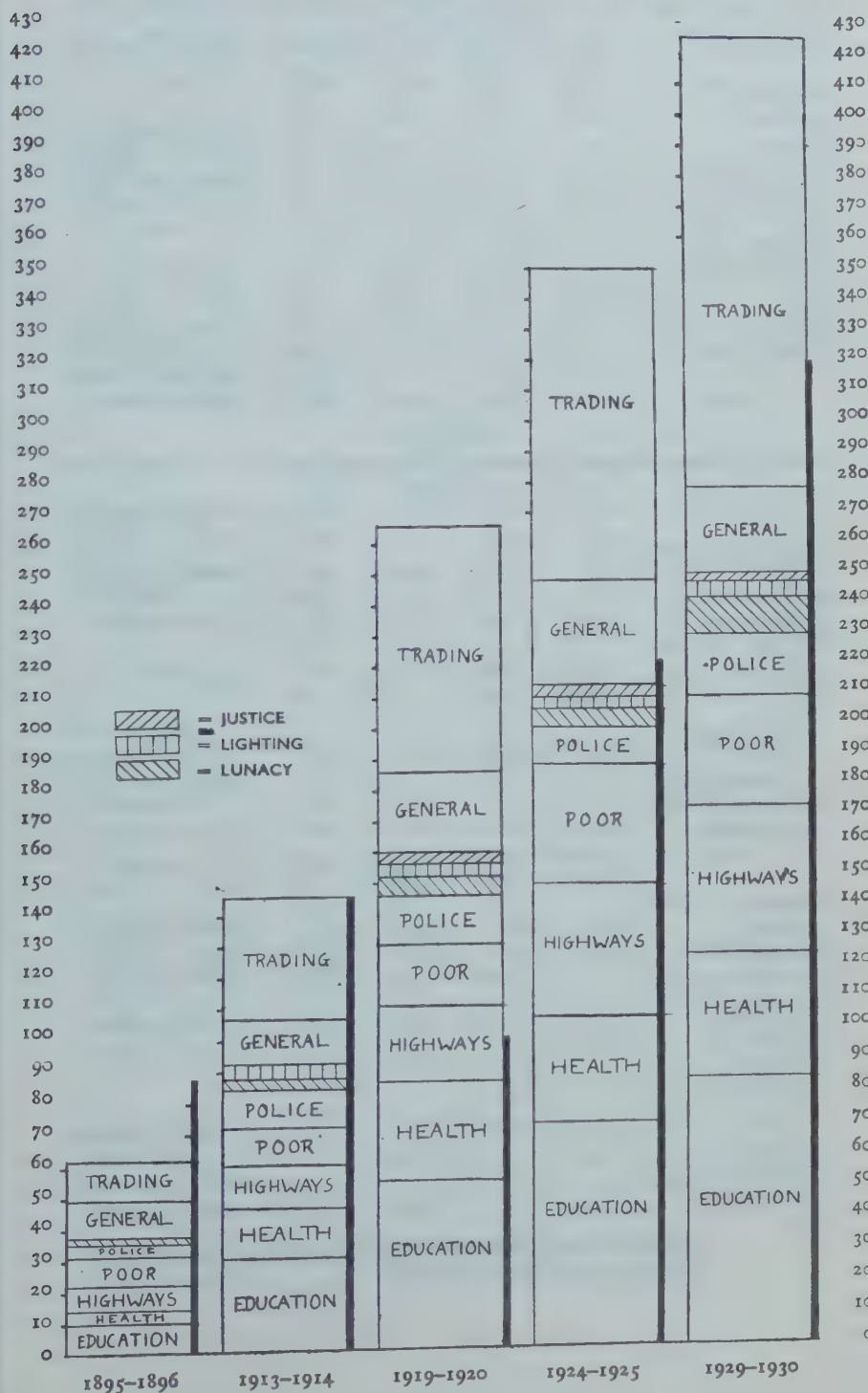


TABLE I
OUTSTANDING GROSS DEBT OF LOCAL AUTHORITIES (ENGLAND AND WALES) AT SIX
POINTS OF TIME

Service	1895-6	1904-5	1913-14	1919-20	1924-25	1929-30
	£m.	£m.	£m.	£m.	£m.	£m.
Education	22.9	40.5	53.2	46.6	42.7	57.8
P. Health	23.7	63.4	82.8	67.4	83.3	100.3
Housing	—	9.0	12.5	19.2	219.6	395.8
Highways, etc. ...	34.4	50.3	61.7	60.1	80.0	103.0
P. Assistance	—	15.5	11.4	7.5	6.5	8.9
General	53.8	22.0	23.1	21.9	49.6	113.1
<i>Trading:</i>						
Harbours, etc. ...	37.9	43.6	79.6	84.4	89.4	97.2
Water	43.9	114.7	131.0	132.0	148.0	163.3
Gas	16.9	23.8	22.0	20.9	25.2	27.9
Electricity	—	25.6	30.8	34.8	68.9	106.5
Other Trading ...	—	40.0	54.5	56.3	51.8	50.8
Total	234.5	466.5	562.6	551.1	864.9	1,224.7

TABLE II
GROWTH OF LOCAL AUTHORITY (ENGLAND AND WALES) ACTIVITY IN THE POST-WAR
PERIOD

Year	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
	£m.	£m.	£m.	£m.	£m.	£m.
Outstanding Debt (gross)	555.1	657.8	768.5	803.8	820.3	864.9
Assessable Value ...	220.7	223.6	234.0	239.1	236.5	241.9
Loan Service	37.8	41.7	51.5	57.6	59.8	61.5
Per cent. of Rate						
Expenditure	33.3	27.0	31.8	40.2	43.9	43.9
Population (m.) ...	35.4	37.2	37.9	38.2	38.4	38.7
Non-loan						
Expenditure:						
Total	265.5	343.2	365.0	346.7	393.3	354.9
Per head (£)	7.5	9.2	9.6	9.1	10.0	9.2
Expenditure on current account ...	227.6	291.4	303.5	289.1	333.4	293.4
Year	1925-26	1926-27	1927-28	1928-29	1929-30	1930-31
	£m.	£m.	£m.	£m.	£m.	£m.
Outstanding Debt (gross)	934.7	1,027.9	1,121.3	1,175.0	1,224.7	1,303.8
Assessable Value ...	246.8	256.1	258.9	267.6	292.4	257.4
Loan Service	68.8	74.2	83.4	89.4	93.2	99.6
Per cent. of Rate						
Expenditure	46.2	44.8	54.3	56.3	60.0 ¹	70.6 ¹
Population (m.) ...	38.9	39.1	39.3	39.5	39.6	39.8
Non-Loan						
Expenditure:						
Total	373.1	402.2	402.6	{ 414.7 405.99 ² }	423.7 ²	432.7 ²
Per head	9.6	10.3	10.8	10.3	10.7	10.8
Expenditure on current account ...	304.3	328.0	319.2	{ 325.3 315.5 ² }	330.4 ²	333.1 ²

¹ Exclusive of grant in lieu of Rates under Derating Act.

² Grants on capital account excluded.

TABLE III

LOCAL AUTHORITY BORROWING (U.K.) COMPARED WITH INDUSTRIAL ISSUES

Year	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
	£m.	£m.	£m.	£m.	£m.	£m.
L.A. Borrowing						
Stock ¹	49.6	19.0	5.6	—	10.3	21.3
(£m.) Yield per cent.	6.9	5.7	5.6	—	4.7	4.8
P.W.L.B. ²	30.1	47.5	12.8	5.7	14.5	28.1
Rate per cent. ...	5.5	6.2	5.4	5.0	4.9	5.0
Total	79.7	66.5	18.4	5.7	24.8	49.4

Non-government issues (£m.) ¹ ...	268.5	82.5	111.5	93.1	85.8	130.5
Yield on new Debentures per cent.	7.9	8.1	6.7	6.4	6.4	6.2

Year	1925-26	1926-27	1927-28	1928-29	1929-30	1930-31
	£m.	£m.	£m.	£m.	£m.	£m.
L.A. Borrowing						
Stock ¹	41.8	27.1	14.9	8.3	41.7	8.0
(£m.) Yield per cent.	5.0	4.9	4.8	5.0	4.9	4.6
P.W.L.B. ²	35.4	37.3	19.1	19.8	17.4	18.8
Rate per cent. ...	5.0	5.0	5.0	5.1	4.9	5.0
Total	87.2	64.4	34.0	28.1	59.1	26.8

Non-government issues (£m.) ¹ ...	121.0	183.8	208.7	177.0	87.1	51.0
Yield on new Debentures per cent. ...	6.5	6.2	6.1	5.9	5.9	6.3

Year	1931-32	1932-33
	£m.	£m.
L.A. Borrowing		
Stock ¹	28.8	24.6
Yield per cent. ...	4.75	3.6
P.W.L.B. ²	8.8	8.0
Rate per cent. ...	4.5	3.8
Total	37.6	32.6

Non-government issues (£m.) ¹ ...	33.6	42.1
Yield on new Debentures per cent. ...	5.4	4.6

¹ Calendar years, i.e. 1919-20 corresponds to year 1920, etc.² England and Wales.

TABLE IVA

DISTRIBUTION OF STOCK AND MORTGAGE DEBT OF LOCAL AUTHORITIES, MARCH 1930

Type of L.A.	Mortgage Debt £m.	Per cent.	Stock Debt £m.	Per cent.
London C.C.	7.4	6.1	113.2	93.9
C.B.C.s	271.5	54.0	80.6	16.0
Other Boroughs	106.7	88.0	5.9	5.0
U.D.C.s	156.2	96.0	.45	.3
C.C.s	56.0	77.0	12.6	17.0
R.D.C.s	78.5	99.0	—	—
Total net debt of all L.A.s, £1,157.9m.				

TABLE IVB

COMPARISON OF THE DEBT POSITION IN CERTAIN TOWNS, 1931

Town	Population	Rateable Value	Total Debt (net)	Mortgage Debt	Short-term Mortgages	Rates
(000 omitted)						
Birmingham ...	1,017,500	6,374	53,936	27,771	104	14/-
Bournemouth ...	116,780	1,581	2,719	887	104	7/6
Bradford ¹ ...	298,041	2,159	20,321	10,421		16/6
Cambridge ...	66,803	581	1,387	1,454	1,291	9/6
Chesterfield ...	64,166	309	2,899	1,820		14/6
Leeds ...	486,400	3,145	23,384	20,260		15/-
Manchester ...	766,333	6,530	44,210	—	37,110	15/6
Preston ...	119,001	631	6,821	315		12/6
Ramsgate ...	33,603	219	—	—		13/4
South Shields ...	114,200	482	2,570	1,415	considerable	10/6
Swindon ...	62,700	323	1,824	—		15/6

TABLE V

LONG TERM BORROWING OF LOCAL AUTHORITIES

(a) PUBLIC WORKS LOAN BOARD: DURATION OF MORTGAGES ON LOCAL RATES (ENGLAND AND WALES)

Year	Total £m.	Per cent. for each period of years.					Avg. Rate. per cent.
		—20	20-30	30-40	40-50	50-80	
1920-21	30.1	2.6	4.7	.1	3.6	89.0	5.5
1921-22	47.5	2.6	3.7	.01	2.8	90.5	6.2
1922-23	12.4	7.6	10.9	.5	4.3	76.6	5.4
1923-24	5.8	16.0	35.0	—	2.0	46.0	5.0
1924-25	14.5	36.8	25.8	2.9	1.3	33.2	4.9
1925-26	28.1	37.4	26.3	3.1	1.6	34.4	5.0
1926-27	35.4	35.8	20.2	5.8	1.4	36.8	5.0
1927-28	37.3	36.2	20.7	5.8	.8	38.3	5.0
1928-29	19.1	38.3	22.4	6.7	.3	32.7	5.0
1929-30	19.8	38.0	26.0	5.0	.1	31.0	5.1
1930-31	17.4	25.0	30.0	6.0	1.0	38.0	4.9
1931-32	18.8	17.0	35.8	7.0	1.7	38.0	5.0
1932-33	8.8	16.0	33.1	14.4	1.5	35.0	4.5
1933-34	8.0	19.7	15.8	21.7	.7	42.0	3.75

¹ 1930 accounts.

(b) AMOUNTS AND DATES OF MATURITY OF STOCK DEBT OF LOCAL AUTHORITIES AND PUBLIC BOARDS (EXCLUDING THE CENTRAL ELECTRICITY BOARD), ENGLAND AND WALES, CONTRACTED BEFORE 1934

Repayable in period.	Interest Payable per cent.									
	2½	2¾	3	3½	4	4½	4¾	5	5½	6
	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.
Before '34 ...	10.4	2.1	99.1	29.6	13.1	—	—	—	1.4	—
'34-40 ...	—	—	1.7	2.6	2.0	3.9	6.6	18.9	1.3	37.0
'41-45 ...	—	—	8.3	2.2	—	34.8	12.2	22.3	8.8	—
'46-50 ...	—	—	1.9	7.0	—	11.4	4.8	56.3	—	1.0
'51-55 ...	—	—	2.3	—	—	9.6	—	2.1	—	—
'56-60 ...	—	.6	—	—	—	—	—	—	—	—
'61-65 ...	—	—	.4	6.2	—	—	—	—	—	—
'66+ ...	—	—	2.7	11.7	3.2	—	—	.5	—	.3
Totals £m.	11.0	2.1	116.4	59.3	18.2	59.7	23.9	100.0	11.5	38.3

- Notes.— (i) The total outstanding stock debt at January 1934 was £430.4m.
(ii) During 1934 Local Authorities and Public Boards in England and Wales raised £41.85m. on the stock exchange (£29m. excluding the Port of London), at an average of 3 per cent. Roughly 80 per cent. of the total was applied to funding short-term debt.

Mr. Gilbert's Defence of a Constant Circulation

By E. F. M. DURBIN

IT is the purpose of this note to examine the reasons given by Mr. J. C. GILBERT (*ECONOMICA*, May 1934) for stabilising the quantity of money at a time when the income velocity of circulation is forced down by an increase in the commercial stages through which intermediate goods must pass as the capital of the community increases¹ or for any other reason. The problem then arises whether equilibrium is preserved by the stabilisation of the amount of money multiplied by its income velocity or by holding the circulation constant. If the former policy is pursued the total money income of a constant population will be stabilised while if the latter policy is pursued money income will be rapidly reduced. In my view the first policy should be pursued (*Purchasing Power and Trade Depression*, Chapter VI, §. 2), while in Mr. Gilbert's view the second policy alone will prevent maladjustments in the real structure of production.

Now the only reason that Mr. Gilbert gives for this view is the somewhat ambiguous statement that in order to obtain the increase in the quantity of money necessary to stabilise the income velocity of circulation the Rate of Interest must be lowered *below the equilibrium rate of interest*.

" . . . The new supplies of money are injected into the economic system via the producers by means of lowering the money rate of interest *below the new and lower equilibrium rate*. When the quantity of money has been sufficiently increased to compensate for the decrease in income velocity, the money rate of interest must be raised to the new equilibrium rate. . . ."

¹ It should be remembered that it is only if the accumulation of capital leads to the *commercial* fragmentation of the structure of production that the consumer's money income will be forced down. It is not the accumulation of capital as such that leads to the decline of the money income of consumers in Lecture II of *Prices and Production*—it is the increase of commercial stages from three to four. It is always the commercial structure and never the volume of capital which controls the relation between producers' total payments and consumers' income.

The whole matter clearly turns on the definition of the equilibrium rate. If by the "equilibrium rate" Mr. Gilbert means the rate of interest which will maintain the real equilibrium of full employment then it is tautological to say that the reduction of the money rate below it would be inconsistent with equilibrium, and Mr. Gilbert, in order to give his statement any meaning, would have to go on to show independently why a maintenance of income velocity was inconsistent with industrial equilibrium. This he does not do. On the contrary he admits at once that the Rate of Interest which maintains income velocity is the Rate of Interest which equates saving and investment—i.e. the rate which makes the amount of money spent on new physical capital equal to the quantity of current money income not spent on consumption goods.

"... While the money rate has been maintained below the equilibrium rate (so as to maintain Income Velocity) investment has not increased in excess of voluntary saving. . . ."

And indeed this is obvious since as long as investment is equal to saving in this sense the price of total output must be constant. There seems to be an obvious contradiction in affirming that the Rate of Interest which equates saving and investment is below the equilibrium rate and the contradiction cannot be resolved without some independent definition of the equilibrium rate.

The solution to the puzzle lies in my view in the fact that Mr. Gilbert and Professor Hayek have in mind the *implicit* idea that the equilibrium rate of interest like any other equilibrium price is the price which will equate the supply of, with the demand for, something—in this case new savings. It is then obvious that a Rate of Interest which allows the quantity of money to increase will not equate the supply of new *money* savings with the demand for them. Part of the current demand for deposits made by new processes of production will be met out of the new credits created by the banks and not out of current savings. But unfortunately a vital ambiguity lies in this definition of equality between the supply of and demand for new saving. Part of the total "demand for savings" consists in a demand for deposits to be held in respect of new stages in the production of intermediate products and it is this demand and this demand alone which will occasion a decline in Income Velocity, as I attempted to show in my book¹ and which has subsequently been more rigidly demonstrated by Mr.

¹ *Purchasing Power and Trade Depression*, pp. 186-7.

Meade.¹ Consequently the Rate of Interest which will equate the supply of savings with the demand for savings *including balances to hold* is quite different from the Rate of Interest which will equate the supply of *real capital* with the demand for it. It is this fact which Mr. Gilbert neglects. If the money demand for the primary factors of production in the manufacture of new capital is kept equal to the supply of money savings no forced saving and no wastage of saving will occur and the structure of production will correspond—*without income deflation*—to the preferences of the final consumers. That is to say the fraction of primary resources invested in the manufacture of new capital will be equal to the fraction of net money income saved by consumers.

Of course it is true that if the money prices of the primary factors are flexible the same disposal of resources will be reached by maintaining the circulation constant but the final position will not differ in the very least from that obtained far more easily by a maintenance of Income Velocity. In the real world the advantages of avoiding an income deflation are plainly incalculable.

¹ *Rate of Interest in a Progressive State*, pp. 19-23.

A Rejoinder to Mr. Durbin

By J. C. GILBERT

MR. DURBIN'S criticism of my note on "Banking Policy and the Income-Velocity of Circulation of Money" makes it apparent that a further elucidation of my position is desirable. In the note I maintain that a neutral money policy implies the maintenance of the quantity of money (M) constant, and not the quantity of money multiplied by its income-velocity of circulation (MV^1). In the case considered an increase in the amount of saving made by the public through the mediation of the banking system was assumed. Such a change involved, of course, a decline in the transaction-velocity of circulation as well as the income-velocity. No increase in the quantity of money was allowed, however. Some writers have maintained that the quantity of money should be increased to compensate a decline in transaction-velocity but not a decline in income-velocity, when the transaction-velocity remains unchanged. There appears to be no reason why such a distinction should be made. The solution of the difficulty appears to me to be found in the idea that it is the quantity of money (M) which must remain constant notwithstanding changes in any conceivable velocity of circulation. The problem is, then, whether equilibrium is preserved by the stabilisation of the quantity of money (M) or the quantity of money multiplied by its income-velocity (MV^1).

This problem can best be approached by enquiring whether M or MV^1 remains constant when the money rate of interest is maintained equal to the equilibrium rate. The equilibrium rate may be defined as the rate at which the supply of and demand for voluntary savings are equated. Some confusion has clearly arisen due to my omission of such a definition and to my statement "... While the money rate has been maintained below the equilibrium rate (so as to maintain MV^1), investment has not increased in excess of voluntary saving." This statement was made in the discussion of policy (2), the policy of increasing the quantity of money to compensate for

a decline in income-velocity advocated by Mr. Robertson in his *Banking Policy and the Price Level*. An increase in the amount of saving in the form of holding bank deposits and a fall in the equilibrium rate from say 5 per cent. to 4 per cent. was assumed. The policy of stabilising MV^1 , it was held (rightly or wrongly is the central problem at issue), involved a money rate of interest temporarily below this new 4 per cent. equilibrium rate. It was conceded that the additional investment corresponding to the new saving could be made at this lower rate, but it was pointed out that the actual investment undertaken would be misdirected. This concession was only possible by using the not wholly satisfactory "jerk method." If the "continuous method," considering a continuous movement over time, had been used, it would have been held that policy (2) led to investment being greater than saving. This confusion would not have arisen if procedure (2) had been directly charged with causing an excess of investment over voluntary saving.

It is now possible to enquire whether M or MV^1 remains constant when the money rate of interest is maintained equal to the equilibrium rate. My conclusion that it is M which remains constant is dependent on the assumption made of absolute flexibility of factor prices (and actually all other prices). It appears that any general conclusions as to what constitute the conditions of neutral money must depend on such an assumption of absolute flexibility of prices. Actual degrees of inflexibility would, of course, be extremely important in a discussion of monetary policy. By absolute flexibility of prices is meant that whenever there is a change in data, prices move as soon as the impact takes place. A change in data causes a change in money demands and prices are assumed to move with the impacts of the new money demands. With any given change in data impacts will take place at different points of time over the economic system.

The case under consideration is that of an increase in saving accompanied by a fall in the equilibrium and money rates of interest, a decline in the income-velocity of circulation and a fall in the prices of consumption goods. The effects of the fall in the prices of consumption goods and the money rate of interest on the assumption of absolute flexibility of prices must now be considered. Producers in the earlier stages of production will borrow more and producers in the later stages borrow less so that there is a transfer of factors of production

from the later stages to the earlier. This change is the result of the movement in relative prices. Total deposits may remain constant while loans are redistributed between producers of different stages. Due to the decline in MV^1 and the fall in the prices of consumption goods producers offer the factors lower money rates of remuneration and these offers are accepted (with the impact prices fall). Similarly the prices of intermediate products are adjusted downwards. In this way money costs are lowered and are equal to the lower money receipts. With absolute flexibility of prices M remains constant.

This conclusion implies that an *inducement* must be given to the producers to borrow more from the banks if M is to be increased to stabilise MV^1 . *This inducement would have to take the form of a difference between the money and equilibrium rates of interest.* The money rate would have to be held below the equilibrium rate and general equilibrium would be disturbed. This disturbance of equilibrium is unavoidable if no assumption of perfect knowledge is made and entrepreneurs are considered as reacting to changes in relative prices and money demands when these changes take place.

Mr. Durbin charges me with neglecting the fact that "... The rate of interest which will equate the supply of savings with the demand for savings *including balances to hold* is quite different from the rate of interest which will equate the supply of *real capital* with the demand for it." It seems to me, however, that my argument is based on this kind of distinction. I hold that the rate of interest which maintains M constant is the rate at which the supply of and demand for voluntary savings are equated. I consider that the rate which maintains MV^1 constant causes investment to be in excess of voluntary savings.

NOTE

It is plain from Mr. Gilbert's reply that he does not appreciate the significance of the ambiguity in his definition of the "equilibrium" Rate of Interest. If it is defined as the Rate of Interest which equates the voluntary savings of the public with the monetary demand for new capital then no reductions in money incomes will occur, *and no excessive investment will be made* if the Market Rate is kept equal to the Equilibrium Rate so defined. The primary factors will be distributed between the production of consumption goods and capital goods in the same proportion as the public is spending final income. There will be no

forced saving and no unstable investment. This is because entrepreneurs as a class are borrowing from the Banks just as much as the public and entrepreneurs taken together are hoarding. Of course if the prices of the primary factors are "absolutely flexible" the same arrangement of resources will be arrived at by Mr. Gilbert's nightmare policy of a stable circulation. What Mr. Gilbert does not appear to realise is that *precisely the same arrangement of resources will be established* by the maintenance of a stable final income.

E. F. M. D.

Book Reviews

Lectures on Political Economy. By KNUT WICKSELL. Volume I—General Theory. Translated from the Swedish by E. Classen and edited with an introduction by Lionel Robbins. London: George Routledge & Sons Ltd., 1934. 8s. 6d.

If this English version of Wicksell's *Vorlesungen über Nationalökonomie* is not seized upon for the most careful and intensive study by those economists who have been unable to cope with either the Swedish original or the German translation thereof, we shall be confronted by a scandal at which future generations may be expected to marvel. That the name of Knut Wicksell—the Swedish Marshall, as Professor Schumpeter called him in a memorial notice which for charm and insight it would be difficult to surpass¹—was one of the great names among the economists of our generation, is coming gradually to be sensed, even if the precise reasons for his greatness are not always clearly apprehended. The trouble, however, has lain precisely in the danger that Wicksell seemed likely to become, particularly so far as English-speaking economists are concerned, a name and little more.

There are few economists of whom it could be said in the measure in which it can be said of Wicksell that such a result would be attended by a loss that would be really incalculable. Professor Schumpeter has said that one has the feeling, when reading Wicksell, of looking into a sort of intellectual workshop: "We feel the living breath of thought, we see the original posing of questions, the difficulties and doubts as they presented themselves to the author. Precisely for that reason he gives us more than the momentary result: he teaches us *how* to investigate a problem, and in every line he points to fields beyond the confines of his own immediate achievement." Never were words more truly spoken; and because they are so truly spoken, it is to be hoped that this translation of the *Lectures* will be greeted with an enthusiasm that will delight the soul of the publisher and solace the courageous heart of the editor.

What is involved in Professor Schumpeter's dictum can be appreciated to the full by one who, like the present reviewer, has resolutely read every word that Wicksell published, as part of a broader attempt to disentangle and to systematise the implications of that concept with which Wicksell's name is most closely associated in the minds of the great majority of economists—"the natural rate of interest." It is not uncommon to see references, sometimes accompanied, and sometimes unaccompanied, by polite (and unpagged) references to the *Geldzins und*

¹ See the *Archiv für Sozialwissenschaft und Sozialpolitik*, Vol. 58 (1927), pp. 238 ff.

Güterpreise and the *Vorlesungen*, to either the early article in *Conrad's Jahrbücher* on "Der Bankzins als Regulator der Warenpreise," or to the later article in the *Economic Journal*, as the basis for a discussion of what Wicksell had to say on the subject of the "natural rate." The outrageous absurdity of such a proceeding will some day be made so manifest that those who have been guilty of it will hang their heads in shame. What one finds, in the successive contributions of Wicksell, is an element of steady growth; subtle changes in definition and emphasis of the importance of which Wicksell himself, unconsciously "pointing beyond the confines of his own immediate achievement," was apparently only partly aware; the breaking of paths so new and so different even from Wicksell's own earlier writings that their importance can be appreciated only by those who are not deceived by the sort of understatement and selfless respect for "continuity" in the development of economic theory which make so apt the characterisation of Wicksell as "the Swedish Marshall." Under the circumstances, what is really needed, as Professor Robbins himself insists in his excellent introduction (p.viii, n.), is a "comprehensive selection" from Wicksell's writings which would not be confined merely to those which have appeared in book form, but would introduce us, through Wicksell's abundant contributions to the periodical literature, into the less well-explored corners of the mental "workshop" of one of the most stimulating writers on economic theory that our generation has known.

Yet there is still such a thing as half a loaf; and one can only be grateful for the fact that we are to have in English not only a translation of the *Geldzins und Güterpreise* but also the translation of the *Vorlesungen* which is here under review. The differences between the two works, within the range of problems with respect to which the treatment overlaps, are of enormous significance to those who will seek them. If the present reviewer begs to be excused from enumerating these differences here, or even from adding to what Professor Robbins has said in his introduction and what Professor Schumpeter and others have said elsewhere with respect to the details of Wicksell's general contributions to economic theory, he does so only because he proposes, in an impending publication of fairly sizeable proportions, to deal with certain of these matters in considerable detail. It is sufficient, in the meantime, to invite the close attention of all serious students to this translation of what not only has been characterised by a Norwegian economist as "the most significant work of Scandinavian economic literature," but must also be regarded, by all competent judges, as one of the really important books in the field of economics in our generation.

Included in the present volume are two Appendices not found in either the Swedish original or the German translation—a review-article by Wicksell on Gustaf Åkerman's *Realkapital und Kapitalzins*, originally published in Swedish in the *Ekonomisk Tidskrift* for 1923, and another review-article entitled "Professor Cassel's System of Economics," originally published (in Swedish) in 1919. The inclusion of the first article is to

be welcomed not only for the merit of its substance and for the fact that it may serve to call the attention of more readers to a book whose power and suggestiveness should not be allowed to be hidden by its peculiarly awkward mode of exposition, but also because it throws light upon those personal qualities of Wicksell which, shining through the pages of technical discussion to a generation that was not fortunate enough to know their author in the flesh, make Wicksell surely one of the most lovable characters that ever lived. How many economists, in their discussion of the work of a much younger man, would have hastened, as Wicksell hastened, to insist (p. 258) that he, Wicksell, was to be lumped with "the vast majority of economists" as having "passed by" Åkerman's main problem—"the co-operation of social *durable* capital in production"—despite the fact that, as early as 1893, in his *Über Wert, Kapital und Rente*, Wicksell had, by introducing the concept of *Rentengüter*, at least made possible the incorporation into his general theoretical set-up of such a discussion as that of Åkerman? How many would have gone out of their way to insist that Åkerman's "acknowledgment" of the influence of Wicksell's work was "too generous," and that Wicksell's own "treatment of the Wage-Fund" was "too derivative to have any particular merit of its own" (p. 273, n.)?

Not many, surely. And least of all, one fears, the well-known economist with whose contributions Wicksell concerned himself in the other of the two review-articles included in this book. One is sorely tempted to engage upon a comparison and a contrast between the work of Wicksell and that of his better-known countryman—a comparison and a contrast which the present reviewer fears would take on, in his own case, a very much sharper tone than Professor Robbins's more equable temper has permitted him to adopt in his introduction (p. xviii). The volume under review, however, and that which is to follow, will make it possible for readers unfamiliar with either German or Swedish to make their own comparisons. All the more reason for expressing our admiration of and our gratitude to those who are willing to take upon themselves the burden of making or editing translations of works of this calibre.

ARTHUR W. MARGET.

University of Minnesota.

The Gold Standard and its Future. By T. E. GREGORY. Third Edition revised and enlarged. Methuen & Co. Ltd. London, 1934. pp. 184. 6s.

The first edition of Professor Gregory's authoritative essays was published immediately after the suspension of the gold standard in Great Britain. The new edition which we have to review is in fact a new book. It provides a theoretical explanation of the nature and the working of the gold standard, an analysis of Great Britain's and the U.S.A. monetary policy since the suspension of the gold standard, amply sustained by statistical figures, and at the end a brilliant examination of the pros and

cons of the return to gold in a chapter which the author modestly styles "A Personal Interpretation."

The abandonment of the gold standard by the two leading nations of the world must not be judged from the standpoint of monetary policy only. It is an item in a system of a general economic policy which is directed to the replacement of the international division of labour by autarchy and to the substitution of different methods of government control for private business. In the U.S.A. the gold policy cannot be separated from the other measures of the New Deal; in Great Britain it is closely linked with the concept of Empire free trade, with Mr. Elliot's agricultural policy, and with the radical measures which Mr. Lloyd George recommends as his New Deal and which a coming government may perhaps employ. That both in Germany and in Russia the currency policy has been adjusted to what they call their new deal is not less obvious than that in Japan the paper currency has to contribute to the nation's imperialistic policy.

Professor Gregory does not fail to realise the fact that one of the great justifications of the international gold standard was precisely that it *was* an international standard. What, then, is the use of an international standard in an age where every import is considered as a kind of national set-back? How can a country return to a once-for-all fixed gold weight of the monetary unit when rigidity of nominal wages must be maintained? It is not improbable that one day both England and America will stabilise either *de facto* or even *de jure* the gold value of their currencies. But that would not mean that they would give up altogether the possibility of new reductions of the gold value of the pound and of the dollar for the future. No international convention and no enactment will be able to prevent a coming government from returning to a free currency for the sake of raising prices, maintaining the nominal level of wages, hindering imports and encouraging exports, and reducing the burden of debt. Nations which consider the return to gold as a means of bargaining with foreign nations and not as a measure for their own benefit, and who lay down conditions to foreign countries for the resumption of gold payments, will easily find some new excuse to leave the gold club. Professor Gregory is right in asserting that the present monetary conditions do not permit resumption of international lending. But even a reintroduction of the gold standard would not do away with the obstacles which render international lending to-day impossible.

My only objection to Professor Gregory's masterly explanations is that he discusses the problem of the return to the gold standard under the assumption that it could by itself re-establish the world's monetary organisation as it existed before 1931. This opinion seems to me unjustified. By abandoning the gold standard of the old type, i.e. the gold standard with a fixed gold weight of the monetary unit, both Great Britain and the United States solemnly replaced the metallic standard by the manipulated standard. Of course, they accepted the validity of the principle that it is the duty of the government to alter the gold content of

the monetary unit when a violent fluctuation of its purchasing power has occurred. So long as this principle is not condemned, so long as public opinion considers a policy such as both these governments have followed as justified, a return to the gold standard would mean hardly more than a declaration that the governments believe that *for the moment* no further depreciation of the gold content of the dollar and the pound is expedient. But it would not at all mean that the policy of changing the gold weight of the monetary unit will not be resumed one day or other. Stability of foreign exchange is no longer the goal at which monetary policy aims. The new goal is not exactly the maintenance of stability of purchasing power, but something like it.

A return to the gold standard would therefore not restore confidence and would not re-establish international lending. The experience of the last five or six years has proved that under present conditions there is no clause or contractual stipulation which protects creditors effectively. Almost all money-lending abroad has gone wrong. In many countries even home lending involves similar risks.

One of the most striking facts of these years of revolutionary economic policy was the intervention of government and law in favour of debtors to the prejudice of creditors. Public opinion, it is true, apologises for these methods by alleging the fact that the purchasing power of gold has increased since 1929. But did public opinion insist upon a remedy when throughout the thirty preceding years the trend of purchasing power was a continuously downward one?

I do not wish in this review to discuss the problem whether the policy of abandoning the gold standard was right or wrong. People may hold different opinions on this point. But everybody must agree that, given the bias of public opinion in favour of debtors, a standard whose purchasing power is managed by the government—even if this management is done by occasional interference only—does not inspire the same confidence in creditors as did the gold standard of the old type. The campaign for the “*Brechung der Zinsknechtschaft*” is not restricted to Germany. In other countries there is not less resentment against the money-lender’s unearned income.

The gold standard means that the purchasing power of the monetary unit depends on the supply of gold. The United Kingdom, and with it all the members of the sterling club, and the United States, with the members of the dollar club, and some other countries, like Czechoslovakia, have adopted a policy of occasional reduction of the gold weight of their currencies. (I wonder whether they would be prepared occasionally to increase the gold weight?) A return to the gold standard would not be enough to arrest the endeavours of influential groups to obtain a new depreciation. Only the conviction that the rigid gold standard has great advantages, and that the disastrous violent fluctuations of the purchasing power are not due to the gold standard but to the preceding expansion of credit could make the return to gold final.

Professor Gregory sees the difficulties and disadvantages of any

system of managed currency very clearly. It may be that it is just this understanding which makes him underrate the strength of the prejudice in favour of this system. In the last sentence of his book he declares: "I do not think it will be disputed that it is impossible to restore the pre-depression level of welfare without a restoration of world trade and investment to something like the level of 1929." Does Professor Gregory not realise that it *is* disputed by very influential people in all parts of the world? The most sinister thing to-day is exactly this, that the soundest principles of economic policy are not only disputed but even rejected by public opinion. Let us hope that Professor Gregory's persuasive arguments will succeed in bringing about a radical change of mind.

L. V. MISER.

The Exchange Equalisation Account. By N. F. HALL. Macmillan and Co. Ltd. Pp. ix + 115. 7s. 6d.

Into the short space of this informative and stimulating little book Mr. Hall has packed a critical account of the origin, organisation and history of the British Exchange Equalisation Account, and also some acute observations on British debt policy since the war, the movements of international purchasing power parities during the past few years, and the future organisation of the Bank of England. It is perhaps a pity that he has not allowed himself a little more space, for the book would have been improved by a fuller preliminary explanation of the way in which the movement of money affects exchange and interest rates under a system of free exchanges. With a little more room, it is probable that he would have avoided giving an impression of general validity to statements which are only true in certain conditions. Thus his remarks on page 4 may leave the impression that, with the balance of payments neutral, an increase of foreign funds in London must inevitably be associated on the one hand with a rise in sterling and on the other with a fall in short-term interest rates. In fact, the rise in sterling takes place only if speculative movements in exchange rates are initiated by foreigners, and the fall in interest rates only if bank deposits are allowed to increase or if foreign owners of sterling balances are more likely to invest them in short-term securities than British owners. These assumptions may have been justified by the circumstances of recent years, but they cannot be assumed to have permanent validity.

Before proceeding to his main theme, Mr. Hall makes a useful contribution to the discussion of why Britain failed in her attempt to re-establish a permanent gold standard. In his eyes, a weak point in the British position was the large amount of unfunded government debt, which for two reasons helped to prevent the British price and cost structure from being brought into equilibrium with those of other countries. On the one hand, the Treasury could not regard with equanimity the prospect of any substantial increase in short-term interest rates, and on the other the large supply of short-term government obligations offered a safe and

convenient investment for foreign funds in London and for banks holding foreigners' deposits. Thus the level of interest rates needed to keep the balance of payments in temporary equilibrium by attracting foreign funds to London was below that needed to enforce the reductions in British money wages and other costs necessary for long-term equilibrium. There thus grew up the great foreign balances in London the attempt to withdraw which ultimately forced Britain off the gold standard. Mr. Hall appears to make a good case for regarding the unfunded debt position as an additional disequilibrating factor, but it may be doubted if any post-war government would have had the courage to allow rates of interest to rise to the point where the balance of payments was in equilibrium without any inflow of short-term funds, in view of the fact that, at least in the short run, this equilibrium would probably have been attained rather by a further rise in unemployment than by a fall in costs of production. In the absence of a spontaneous flow of foreign balances to London, it is likely that other arrangements would have been made with foreign central banks for supporting the pound without a further rise in interest rates.

After a discussion of the reasons why the large scale return of foreign balances to London in the first months of 1932 induced the British Government to set up the Exchange Account, Mr. Hall proceeds to discuss its history during the first year of its existence, from the middle of 1932 to the middle of 1933. He divides this year into two periods: the first up to December 1932, covering the development of the government's "cheap money" policy, the War Loan conversion, and the fall in sterling; and the second after the beginning of 1933, when the flight from the dollar was tending to force sterling rapidly up and the Exchange Account bought large amounts of gold, most of which it resold to the Bank of England, in order to check its rise. In the first period Mr. Hall is of the opinion that the Exchange Account did its best to fulfil its original function. It held sterling at a level which events proved if anything too high (in view of the government's policy of credit expansion) from June until September, and only allowed it to fall when its resources were exhausted. Of the Account's conduct in the first half of 1933 he is, on the other hand, severely critical. He considers that if sterling had been allowed to rise to 75 per cent. of its par gold value, instead of being kept down to about 70 per cent., "pressure would have been taken off gold prices to the great benefit of European conditions and with no apparent disadvantage to Great Britain and sterling countries." He attributes the failure of the Account to permit this rise to the fact that "since April 1933 the whole policy of the Exchange Account seems to have been changed. The pound becomes a satellite of the dollar as the result of the deliberate choice of the Exchange Account, and the gold currencies are allowed to appreciate in terms of sterling [*sic!*] to the level necessary to equate the dollar and the pound" (p. 79).

This is another point where one would have liked Mr. Hall to give himself a little more space, for there are two other factors affecting the

exchange value of sterling upon which he hardly touches. In the first place he appears to regard his expressed intention of placing British monetary policy outside his terms of reference as precluding him from discussing the effects of the "cheap money" policy upon the level of exchange rates; and in the second he seems to lay insufficient emphasis on the effects of the Account's policy in locking up so large a proportion of its non-sterling assets in the form of gold at the Bank of England, where it served to consolidate, though only partially to initiate, the expansion of central bank credit. When the great inflow of foreign funds took place in 1933, the Exchange Account checked the rise in sterling by buying foreign exchange. By turning so much of this into gold and locking it up in the Bank of England, the Account deprived itself of the power of re-selling it in order to check the fall in sterling when foreign funds were withdrawn in 1934 and 1935.

His last two chapters Mr. Hall devotes to the future of the Exchange Account, especially after the stabilisation of the pound. He believes that the continued existence of large foreign sterling balances renders necessary the maintenance of the Account in some form, but that the determination of its policy should be placed in different hands. After discussing possible alternatives, he finally suggests absorption of the Account by the Issue Department of the Bank of England, which would give the Bank power to increase or decrease its holdings of gold or foreign securities without necessarily altering the size of the note issue or the position in the Banking Department. If it were thought desirable that some central authority should be given the task of insulating the financial system of this country from the effects of changes in foreign-owned sterling balances, this method would perhaps be one of the best. But it is at least worth considering whether such insulation is either necessary or even desirable. When, under the gold standard system, foreign balances are withdrawn from London, the strain is felt in the first instance, not by the Bank of England, but by the various British debtors to whom these funds have actually been lent. If loans from foreign lenders are in fact more likely to be called up in cash than similar loans from British lenders, it is surely for the borrowers to take the precaution of making themselves more liquid. If the banks know that foreign balances in London are increasing (whether this occurs in connection with an inflow of gold from abroad or with an adverse balance of other payments), they should surely see that their cash ratios rise to compensate.¹ The same considerations apply to other financial institutions, including the Government. Even if the Bank of England confines its intervention to calling the attention of these institutions to the danger they are running, and reminding them that in the case of withdrawals of foreign funds it will have to safeguard its own position without regard to their convenience, there seems no reason why an inflow of funds from abroad, whether or not resulting in an expansion

¹ Between 1925 and 1931, while foreign balances in London were presumably increasing, the average cash ratio of the London Clearing Banks *fell* from 11.9 per cent. to 10.2 per cent.

of central bank credit, should not be offset quite naturally by an increase in the liquidity of institutions responsible for repaying them, while a withdrawal of foreign balances could similarly be offset by a decrease in cash ratios justified by the decreased danger of cash withdrawals. But this will only happen if the financial institutions of this country learn to regain the habit of standing on their own legs, instead of flying to the Bank of England to get them out of any trouble that their own lack of foresight has brought on themselves.

F. W. PAISH.

Mathematical Psychics. An Essay on the Application of Mathematics to the Moral Sciences. By F. Y. EDGEWORTH. No. 10 in Series of Reprints of Scarce Tracts in Economics and Political Science. London, 1932. London School of Economics and Political Science. pp. 150 5s.

Every economist will be grateful to the Editors of this Series of Scarce Tracts for making accessible this gem of economic literature. Present-day interest in this, the only book on economics published by Edgeworth, is centred on the chapters on the Economic Calculus; the other sections are to-day of smaller importance. Every one of us knows the persistent influence which the fundamental ideas of these chapters have had on the development of economic theory. The science of economics took a decisive step forward when, in 1881, Utility was conceived by our eminent author for the first time as a function of several variables and represented graphically as a surface. From this conception it was only a short step to the Indifference Curve, that fundamental construction which has proved so very fruitful for the further development of modern theory, and which is one of the supporting pillars of modern economics. The best example of the extreme usefulness as tools of analysis of the Indifference Curves and the Contract Curve derived from them is the treatment of the central problem of the volume—"How far is contract determinate?" This chapter analyses elegantly and profoundly the group of problems whose importance only the recent development of the theory of monopoly and polypoly has made quite clear. The exposition, which strikes one as extremely modern, is deserving of our highest admiration. It is most surprising to find in a book published in 1881 sentences like the following: "The advantage of this general method is that it is applicable to the particular cases of imperfect competition, *where the conceptions of demand and supply at a price are no longer appropriate*"¹ (p. 31), or: "Starting with complete monopoly, we shall find the price continually diminish as the number of monopolists increases, until the point of complete fluidity is reached. This gradual 'extinction' of the influence of monopoly is well traced by Cournot in a discussion masterly, *but limited by a particular condition, which may be called uniformity of price, not (it is submitted) abstractedly necessary in cases of imperfect competition*" (p. 47). I am certain that anybody ignorant of the author of these sentences would assume that they were taken from one of the

¹ Italics are mine.

modern writers on the theory of imperfect competition. For about fifty years economic theory has neglected this contribution. How many detours and mistakes would have been avoided if this masterpiece had formed the basis for continuous development!

ERICH SCHNEIDER.

The Economic History of South Wales prior to 1800. By D. J. DAVIES. University of Wales Press, 1933. pp. 171. 8s. 6d. *The Economic History of Scotland.* By I. F. GRANT. Longmans, 1934. pp. 295. 5s.

These two books have certain points in common, for both purport to be provisional surveys of the economic history of their respective countries, and both have a Foreword by Principal Rees.

The task Mr. Davies has set himself is a very ambitious one. It is none other than to present a survey of the economic history of South Wales from the Prehistoric Period to 1800. As Principal Rees makes clear in his Foreword, the survey here presented is provisional, and its main purpose is as much to stimulate further inquiry as to provide a connected narrative of what is already known of the economic development of South Wales. Because of the tentative nature of his inquiry, Mr. Davies might have shown greater caution in drawing conclusions. He might also have displayed more anxiety to help the reader and the would-be investigator by a more judicious use of footnotes. On the first point, for example, Mr. Davies is greatly impressed by the mercantilist policy of the Tudors—the Navigation Acts were good for Welsh shipping (51), corn-growing was encouraged by mercantilist policy (54), the fishing industry was fostered by Tudor policy (62), and so on. But surely these are topics to which the author should have directed further research. Or again take the eighteenth century and the Industrial Revolution. He says “the Industrial Revolution reached South Wales somewhat later than most parts of England.” At its best this is a vague statement. When one reads of the importance of copper smelting, lead mining, coal mining and iron production one is justified in thinking that the progress of industrial change in South Wales must have been different from that in Lancashire and Yorkshire. More attention might have been devoted to the growth of capitalism and the factory system in the seventeenth and eighteenth centuries. In a book of this kind one cannot complain that Mr. Davies has not used records of business firms, but it would have been interesting if he could have pointed to the existence of any such valuable sources.

Still these are points of detail. Mr. Davies has performed a valuable service in bringing within the compass of one volume the contributions of many to the economic history of South Wales. If his book stimulates others to research his arduous labours will have their reward. There is a good bibliography and several maps.

Miss Grant gives an excellent account of the whole course of Scottish economic history. She would be the first to admit that her account is provisional, that subsequent research will perhaps change the emphasis

of much that she has written, and that her book must be regarded as the starting point of further investigation. From this point of view it should be said, her footnotes are altogether admirable, for Miss Grant is always ready to show the tentative nature of her conclusions, to direct the reader to further information, and to indicate the topics which require more intensive research. As one would expect from the author of *The Social and Economic Development of Scotland before 1603*, this short survey is well written, suggestive, and full of brilliant flashes of inspiration. The best part of the book undoubtedly is that portion on which Miss Grant is the acknowledged authority—the period prior to 1603—and within that period the intricate and bewildering land system is clearly her forte.

Coming down to the modern period Miss Grant indicates many subjects which require investigation. One of the most urgent is the story of Scotland's commerce from the sixteenth century, and the revolution that took place in its direction in the later seventeenth and eighteenth centuries. How far was Scotland's industrial development hindered by the medieval restrictions of Guildry and Incorporated Trades? How precisely was the Scottish runrig village affected by the agrarian changes of the eighteenth century? What were the social effects of the growth of town life and the extension of the factory system? These and other topics call for detailed investigation, but Miss Grant's book makes easier the task of anyone who wishes to understand Scotland's economic history.

HENRY HAMILTON.

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The Maintenance of Capital¹

By F. A. VON HAYEK

Contents: I—The Nature and Significance of the Problem. II—Professor Pigou's Treatment. III—The *Rationale* of Maintaining Capital Intact. IV—The Action of the Capitalist with Perfect Foresight. V—Obsolescence and Anticipated Risks. VI—The Reaction of the Capitalist on Unforeseen Changes. VII—The Impossibility of an Objective Standard with Different Degrees of Foresight. VIII—"Saving" and "Investing." IX—Capital Accounting and Monetary Policy.

I

THE NATURE AND SIGNIFICANCE OF THE PROBLEM

It is not likely that in the whole field of economics there are many more concepts which are at the same time so generally used and so little analysed as that of a "constant amount of capital." But while in the investigation of the effects of nearly any change this is almost without exception treated as a given datum, the question what this assumption exactly means is rarely asked. To most economists the answer to it has apparently seemed so simple and obvious that they have never attempted to state it. In consequence the difficulties involved have hardly ever been realised, still less have they been adequately investigated.

The difficulties of the problem would undoubtedly have been realised if economists had been more generally conscious of its importance. But although, even in the analysis of a

¹ This article was sketched and most of it actually written a considerable time ago. I have delayed publication because I felt that a satisfactory treatment of the subject would require further investigation of some of the more general aspects of the theory of capital. But although I have since come to the conclusion that such a treatment, on the basis of re-examination of the whole complex of questions raised by capitalistic methods of production, would make some reformulation of the argument of this article necessary, I do still feel that a discussion, which starts from the more conventional approach, and which is, therefore, intelligible apart from the setting that a more complete treatment would require, may not be quite useless.

stationary equilibrium, the inclusion of the "quantity of capital" among the determinants of that equilibrium means that something, which is the result of the equilibrating process, is treated as if it were a datum,¹ this confusion was made relatively innocuous by the essential limitations of the static method, which while it describes the conditions of a state of equilibrium, does not explain how such a state is brought about.

It was only with the more modern attempts to make the descriptions of the conditions of equilibrium the basis of the analysis of the dynamic processes, that the exact meaning of this assumption became of serious consequence. But we need not go far beyond the description of one state of equilibrium to see why it matters. Even the very simplest "problem of variation" as the effect of a shift in demand can only be answered on the basis of a definite assumption as regards the "supply of capital," and the usual answer shows immediately how problematic is the assumption on which it rests.

The idea implicit in the discussion of problems of this sort is that there is a quantitatively determined fund of capital, which can be distributed and redistributed in any way between the different lines of production without changing its aggregate value.² But has this assumption of a perfectly mobile capital fund any definite meaning? And if so, what determines whether this value remains constant, what are the conditions under which it will remain constant, how is it measured, and by what is this constant magnitude represented? Certainly not by the concrete capital goods. It is the essential difference between them and factors like labour or land that they will not remain physically the same when prices change, but that the physical composition of the aggregate called capital will change in consequence of any change in the data. Any of the problems of variation with which we are concerned will involve what is commonly called a transformation of capital into other forms. It is not the list of the different pieces of individual capital goods which is assumed to remain unchanged, when we speak of a constant supply of capital, in the same way as we

¹ Cf. K. Wicksell, *Lectures on Political Economy*, vol. I, p. 202. London, 1934.

² This common assumption has recently been stated with particular emphasis by Professor Pigou in his latest article on the subject to be quoted later. He finds the basis of his deductions "in the concept of capital as an entity capable of maintaining its quantity while altering its form and by its nature always drawn to those forms on which, so to speak, the sun of profit is at the time shining." *Economic Journal*, June 1935, p. 239.

assume that the total supply of labour or land is composed of elements of the same kind, when we regard its supply as unchanged.

Even if a definite meaning can be attached to the statement that the value of the capital goods has an existence independent of the capital goods themselves, it does not help us in any way to explain why, or under what conditions, this aggregate value should remain constant, when conditions change. There can be no doubt that the value of at least some of the existing capital goods will be very materially affected by almost any conceivable change. The question then is why should the capitalists, in spite of this change in the value of their concrete capital goods, be able and willing, by an appropriate adjustment of their investment activity, to maintain the total value of their possessions at exactly the same figure as before the change. Is there any justification for considering this in any sense to be the "normal" behaviour of the entrepreneurs, or is it even conceivable that they can, under all circumstances, behave in such a way? Must we not rather assume that under some conditions it will be impossible for the capitalist to maintain the value of his capital constant, while under others it could hardly be considered in any sense "normal" if he did no more than this?

What, then, is that neutral state in which the owners of capital are supposed to take a merely passive attitude, performing no new saving or dissaving? This question, already of considerable importance when we try to trace the consequences of any other change, becomes of special importance when we turn to the autonomous changes which can be said to originate on the side of capital. Then already the initial problem, of what can be regarded as such an autonomous change on the side of capital, depends on our definition of that neutral state. In the usual discussions of this sort of problem, it seems to be generally implied that there is a clear line between the normal process of maintaining and replacing the existing capital, and any net addition to it. It is assumed that it is always possible to decide in an unequivocal way whether capital remains constant, increases, or decreases, and that there are typical phenomena connected with each of these processes which, at least conceptually, can be clearly separated. Indeed, so long as all the other data remain constant, no difficulty arises in this connection. But as soon as one tries to apply these categories to a world where things are changing, all these alluringly simple

concepts become dependent in more than one way on exactly what is meant by a given stock of capital. It is impossible to define income (or "earnings") and therefore savings before one has separated from the gross produce those quantities which are required to "maintain" capital, and it is equally impossible to say what are additions to the stock of real capital before one has shown what capital goods are required to make up for current depreciation.

If it should prove that serious difficulties arise in this connection, this would be a matter of great importance for the theory of the trade cycle. In the course of the last generation theorists in that field have tended more and more to agree that industrial fluctuations consist essentially in alternating periods of accumulation and decumulation of capital with all their typical consequences. More recently there has seemed to be considerable unanimity in seeking for causes of these fluctuations in the accumulation of capital in conditions which make the movement of investment to a certain extent independent of that of saving. But although the quantitative relationship between saving and investing, their correspondence or non-correspondence, has become the central point of attack, it seems that all the writers who have made use of that approach have failed to make clear exactly what they meant either by saving or investing. This would have required a careful definition of that neutral position in which neither positive nor negative saving were made, because all the income and no more than the income was consumed, and in which capital goods were produced in exactly that quantity and composition that is required to keep the stock of capital intact.

But while it cannot be denied that modern trade cycle theorists (including the present writer) have lamentably failed to provide a concept which is indeed indispensable if their deductions are to have a clear meaning, it seems that they are not the only group of economists who have been deceived by the apparent simplicity of the problem. Even more than this group one should expect the writers on the income concept to have provided a clear answer. And even if the general discussions of the income concept should prove disappointing, one would certainly feel entitled to expect a definite answer in the discussions of business profits, since profits of all things can evidently only be defined as the excess of the total business assets over the equivalent of the capital invested at the beginning of the period. But while we find in general discussions

of the income concept, particularly in the writings of Professor Irving Fisher,¹ at least some references to our problem, the standard works on business profits, like Professor F. H. Knight's *Risk, Uncertainty, and Profits*, or Mr. Ch. O. Hardy's *Risk and Risk Bearing*, are almost bare of any reference to the problem.

II

PROFESSOR PIGOU'S TREATMENT

In view of these circumstances the solitary attempt first made by Professor Pigou a few years ago in the third edition of his *Economics of Welfare* deserves far greater attention than it has actually received. Although Professor Pigou discusses the problem for a special purpose, the definition of a national dividend, he raises most of the problems that need investigation. And it is only an additional reason for gratitude to that distinguished author that he has apparently not felt satisfied with his first attempt towards an answer and that he has in the fourth edition of the same work given us an entirely new version of his solution.² In the third edition he had still considered that the problem could simply and only be answered by "employing money values in some way as our measuring rod," but that we cannot employ crude money values but must introduce "corrections."³ Accordingly, he defined as constant quantities of capital collections of capital goods, whose aggregate money value, divided by an appropriate index number of general prices, remained constant. After making some further allowances for changes in this magnitude caused by changes in the rate of interest, which need not concern us here, he proceeded to apply this definition to cases where the value of capital goods "is destroyed through a failure of demand or through a new discovery which renders existing

¹ By his definition of income, which identifies it with actual consumption, I. Fisher seems to avoid the problem altogether. But it recurs in connection with his concept of earnings, which corresponds to the ordinary income concept. And although he does not provide an explicit answer, the solution of the problem which seems to be implied in his discussion, or at least the only solution which seems to be consistent with it, appears to be very much the same as that attempted in this paper.

² Since this paper has been completed a further study of this problem has been published by Professor Pigou under the title "Net Income and Capital Depletion" (*Economic Journal*, June 1935). Some references to this paper will be made in further footnotes.

³ *Economics of Welfare*, 3rd ed. (1929), p. 45.

instruments obsolete,"¹ and suggests, consistently with the criterion adopted, that in such a case it is convenient, although arbitrary, to say that the stock of capital has decreased (or in the reverse case of an expansion of demand that it has increased).

In the fourth edition of the *Economics of Welfare* the entire chapter is rewritten. Although no explicit explanation is given why the former answer has been abandoned, it is fairly evident from the nature of the changes made, and the general shift of emphasis, that the aim has been to make the decision more dependent on the reasons why it is thought desirable to maintain capital intact. Considerations relating to the constancy of the money value of capital which formerly occupied the chief place are now relegated to a subordinate place, and mentioned only to show that if, all other things remaining the same, in consequence of a contraction in the supply of money, money values all round are substantially reduced, and the money value of capital contracts along with the rest, nobody would consider this as a decrease of capital. The second case mentioned is again that of the effects of a change in the rate of interest on the value of capital, and it is decided (apparently on the assumption that such a change will not affect the return from the existing capital goods) that such changes are not to be considered as changes in the quantity of capital, so far as the estimation of the national dividend is concerned. But then the effects of changes in demand and of inventions are taken up, and here the decision is now the reverse from what it was before. In Professor Pigou's opinion, "we may say quite generally that all contractions in the money value of any part of the capital stock that remains physically unaltered are irrelevant to the national dividend; and that their occurrence is perfectly compatible with the maintenance of capital intact."² The same applies to actual destruction of the capital goods by "acts of God or the King's enemy," where the distinguishing criterion is that they are not incidental to the use of them, or as I shall suggest instead, because and in so far as they cannot be foreseen.³ But all other physical deterioration in the capital stock, such

¹ *Economics of Welfare*, 3rd ed., p. 47.

² *Ibid.*, 4th ed. (1932), p. 45. In his latest article on the subject Professor Pigou goes even further and suggests that also physical changes which, while leaving a capital good as productive as ever, bring nearer the day of sudden and final breakdown, should be disregarded in the same way as the nearer approach of the day that will make it obsolete (*Economic Journal*, p. 238).

³ In his recent article (p. 240), Professor Pigou now suggests the same distinction.

as the ordinary wear and tear of machinery and plant, destruction by accidents like fire and storm, in so far as these are, as in the case of ships, incidental to their use, ought to be made good by adding "to the capital stock something whose value is equal to that which the machine, had it remained physically intact, would have now."¹ By this are explicitly excluded all the losses in value, which are not due to physical deterioration, but are due to causes like the changes in demand or the new inventions mentioned before, to which Professor Pigou now adds foreign competition. This is expressly confirmed by the concluding sentence of the paragraph, in which, summarising the result, he says, "Maintenance of capital intact for our purposes means then, not replacement of all value losses (not due to acts of God and the King's enemies), but replacement of such value losses as are caused by physical losses other than the above."²

We shall have to discuss these cases in greater detail in the systematic part of this article. Here only one difficulty arising out of Professor Pigou's answer may be mentioned, since it opens up the vista on a set of problems which he has left untouched. What seems most surprising in his classification is that obsolescence, even where it is foreseen at the time a capital good is produced or acquired, and where accordingly the investment is made in the expectation that the product will cease to have value long before it has physically decayed, should not have to be made good in order to maintain capital intact. This means that gradually all existing capital may be squandered, in the ordinary sense, by erecting durable structures for very transient purposes, and replacing them, when they become obsolete after a short time, only by capital goods of a value equal to that which they still possess after their temporary utility has passed. Surely there must be some cases where obsolescence, a decrease of usefulness of a capital good

¹ *Economics of Welfare*, 4th ed., p. 47.

² *Ibid.* In the latest version of his views, to which reference has been made in the preceding footnotes, Professor Pigou now regards it as necessary in order to make good the depletion of capital implied in the discarding of a capital good, that a quantity of resources be engaged in the production of a new capital good which would suffice in actual current conditions of technique to reproduce the discarded element (*loc. cit.*, p. 239). Professor Pigou seems to overlook here the fact that "in actual current conditions of technique" it may be much more expensive to reproduce the identical capital good than it either was when it was first produced or than it would be to replace it by a much more up-to-date instrument. It would certainly be much more expensive to reproduce a new 1926 model of a car to replace one that is worn out, than to replace it by a 1935 model.

not connected with any change in its physical condition, has to be taken into account. And, apparently, the distinction must somehow be based on whether that change can be foreseen or not. But if this is so, does it not provide a criterion of much more general use than the casuistic distinctions drawn by Professor Pigou? This is the problem to which we have to turn.¹

III

THE RATIONALE OF MAINTAINING CAPITAL INTACT

To "maintain capital intact" is not an aim in itself. It is only desired because of certain consequences which are known to follow from a failure to do so. And as we shall see, it is not even possible to attach a definite sense to this phrase if we try to apply it to a changing world, independently of why we want to do so. We are not interested in its magnitude because there is any inherent advantage in any particular absolute measurement of capital, but only because, *ceteris paribus*, a change in this magnitude would be a cause of a change in the income to be expected from it, and because in consequence *every* change in its magnitude may be a symptom for such a change in the really relevant magnitude, income. Professor Pigou has abandoned the attempt to define in terms of a value dimension of capital the position, in which the stock of capital undergoes no changes that need to be added to or deducted from the output of consumers' goods for the computation of the national dividend. He has thereby not only acknowledged the inherent difficulties of any value measurement, which in the present case indeed are particularly serious,² but he has apparently also

¹ Professor Pigou's views on the subject have recently been discussed in some detail in two Italian articles by A. M. Neuman (Osservazioni sul concetto di "capitale inalterato" e sulla recente formulazione del prof. Pigou) and F. Vito (La nozione di lunghezza media del processo produttivo) in the *Rivista Internazionale di Scienze Sociali e Discipline Ausiliari*, Anno XLI, Serie III, September 1933 (vol. IV, fasc. V), and by R. F. Fowler, *The Depreciation of Capital*, London, 1934, pp. 14-21.

² In the case of the comparison of different money incomes of a person or a group of persons, the result of a computation of an index number can be given a definite meaning, if the index number is constructed in such a way as to show that the one income would buy all that could be bought with the other income *plus* something else, or that it will not buy all that can be obtained with the other income. (On all this cf. G. Haberler, *Der Sinn der Indexzahlen*, *passim*, and J. M. Keynes, *A Treatise on Money*, Book II.) But it must appear very doubtful whether there are any assumptions on which price levels, not only of consumers' goods, but of all goods composing the stock of capital, i.e. of all goods of any description, can be given a similar meaning.

recognised the much more fundamental fact that such constancy of the value dimension has no necessary connection with the reasons why we wish to "maintain capital intact," and that in consequence there is no reason to assume that people will in fact normally act in such a way as to keep the value of the stock of capital constant.¹

What, then, are the reasons why we wish capital to behave in a particular way? In the first instance, this reason is evidently that the persons who draw an income from capital, want to avoid using up unintentionally parts of the source of this income, which must be preserved if income is to be kept at the present level. We want to avoid an unintentional temporary "splashing," or "stinting" which would have the effect of later reducing income below or raising it above the level at which we aim. Capital accounting in this sense is simply a technical device, an abbreviated method of solving the complicated problems arising out of this task of avoiding involuntary infringements upon future income. Whatever the time shape of the future income stream derived from the capital in his possession at which an individual aims, there still remains the problem of deciding what is the required action with regard to the individual parts of his possessions. And although we have certainly no right to assume that every person will normally aim at a permanent constant stream of income from his capital, there is probably some justification for regarding this case as one of special interest. In any case, even when the capitalist aims at some other shape of the income stream, the problem remains the same, and the case of the constant income stream might simply be regarded as the standard with which the other cases are compared.

So long as we confine ourselves to the effects of the decisions of the capitalist on his own income stream, it may seem arbitrary to treat any one of the different sets of consistent decisions regarding his future income stream as in any way more "normal" than any other. It may even have a certain theoretical attraction simply to define whatever incomes he wants to have at different periods as equal incomes. We are, however, constrained by other reasons to abstain from such a pure subjectivism and to adopt a more objective standard. These

¹ Professor Pigou's treatment of the problem in his recent article seems, however, to some extent rather a return to a much earlier materialist conception which sees in capital some physical substance whose magnitude is independent not only of its money value, but also of its serviceability.

other reasons are that we are interested in the maintenance of capital, not only because of the people who themselves deliberately distribute income over time and by so doing become capitalists, but also because of the effect of their activity on the income of other people. In the case of the workman, whose labour receives a greater remuneration because of the co-operation of capital, but who is not himself an owner of capital, we have no expression of his preference as regards the shape of his income stream, and we have to *assume* that he wants an income stream which does at least not decrease. Such a constant income stream in an objective sense might provisionally be defined as consisting at every successive moment of varying collections of commodities actually bought at an aggregate price, at which the collection of commodities actually bought at the beginning of the period might have been obtained.

IV

THE ACTION OF THE CAPITALIST WITH PERFECT FORESIGHT

The next task, then, is to find out how the individual owner of capital goods will behave, if he wants to keep the income he derives from his possession constant, and if he has complete foresight of all relevant changes.¹ Complete foresight in this sense need not refer to all the relevant future. It is sufficient for our purpose to assume that at any one moment he foresees all changes that will affect the return of the investment he then makes. His anticipation need only be correct for a period equal

¹ It is, of course, not assumed that the capitalist under consideration has always possessed complete foresight, since in this case the problem of adaptation of his plans to an anticipated change would not arise. All that is assumed is that at a given moment all future changes relevant to his investments become known to him. The difficulties which any such assumption of foresight of all relevant changes involves are well known. The only way in which such foresight, not only of the real changes, but of all prices during the relevant period, is conceivable is that all these prices are actually fixed simultaneously in advance on some single market, where not only present but also all future commodities that will become available during the relevant period are traded. This introduces the further difficulty that to fulfil the condition it would be necessary that the periods for which people foresee are the same for all individuals, and that the changes that will happen in the more distant future are disclosed periodically and simultaneously to all people. However, it is not necessary here to go further into all the difficulties raised by this assumption, which will be dropped later, difficulties which are by no means exhausted by those mentioned. Attention had to be drawn to them only in order to make us realise how unreal the assumption of perfect foresight is (even for the limited periods relevant to our problem).

to that for which his investment runs, and if he makes investments in different fields, the extent of his foresight need only cover the relevant facts affecting the different investments during such different periods as these investments last. Beyond this, only some more general expectation as regards the rate of interest at which it will be possible to reinvest the capital recovered, will be necessary.

Within these periods, his anticipations must in the first instance cover the relevant price changes. But such foreknowledge is hardly conceivable without some foresight of the real changes, which bring about the changes in prices. The main types of changes, which he will have to foresee and the effects of which we shall have to discuss, will be changes in the demand for the products and the consequent changes, not only of the prices of the products, but also of the prices of the factors, changes in the quantities of the factors of production, and changes in their prices caused in this way (including, in particular, in both these cases, changes in the rate of interest), and finally, changes of technical knowledge or inventions. With respect to this last case the idea of foresight evidently presents some difficulty, since an invention which has been foreseen in all details would not be an invention. All we can here assume is that people anticipate that the process used now will at some definite date be superseded by some new process not yet known in detail. But this degree of knowledge may be sufficient to limit investments in the kind of equipment, which is bound to be made obsolete by the expected invention, in such a way that the old equipment wears out as the new invention can be introduced.

If we take first the case of an anticipated change in the demand, either away from or towards the product produced by our capitalist, his knowledge of this impending change, a full investment period in advance of its actual occurrence, will evidently put him in a position so to redistribute the earned amortisation quotas of his capital between the different industries, that he will derive the greatest return from them possible under the new conditions. But in what sense will these amortisation quotas represent a constant magnitude, and under what conditions can we assume that the capitalist will invest them and no more and no less, if he merely aims at keeping his income from capital from now onwards constant?

There is no reason to assume that, if he just continues to reinvest, after the change has become known, the amounts he

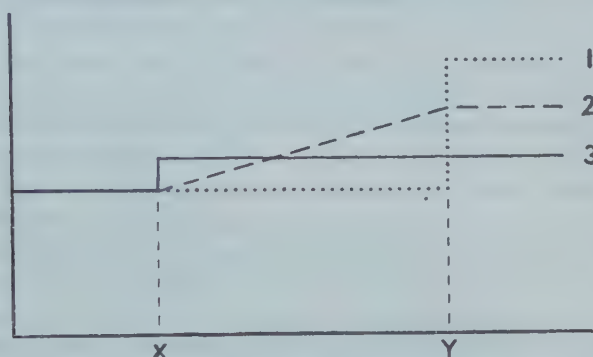
used to invest, in what appears the most profitable way in the light of the new knowledge, this will have that effect. The shift in demand between different products, if the co-efficients of production in the different lines of industry are not exactly the same, is bound to change the relative prices of the factors, and these changes will occur gradually as all the entrepreneurs redirect their resources in anticipation of the impending change. If we take the simplest imaginable case where there is only one uniform scarce factor besides "capital," namely labour, it will depend on the relative quantities of labour required in the lines of industry, to and from which demand is expected to shift, whether the product of labour invested for longer periods will fall relatively to that of labour invested for shorter periods, or *vice versa*.

If we assume that the industry, whose product will be in stronger demand, is one where relatively more capital is required, the tendency will be for wages to fall, and prospective returns on capital to rise. The way in which this is brought about is that, out of the amortisation quotas shifted to the industry now more favoured by demand, the capitalist will be willing to pay only wages corresponding to the lower marginal productivity of labour there. And since the withdrawal of these amortisation quotas from the other industry will decrease demand for labour there, wages will gradually fall.

The position of the capitalist will thereby be affected in a double way. The gradual fall of wages will leave in his hands a greater amount of gross profits to be divided between investment and consumption. And the expected returns on the reinvestment of these receipts will be increased. How much of these gross receipts from capital will he have to reinvest, if he wants to obtain a constant income stream from that moment onwards? There are three main types of possible reactions of which only one corresponds to that criterion. Either he may go on, until the change has actually occurred, to consume only as much as before. In that case he will have invested during the period constantly increasing amounts of money, and will consequently find himself at the end of the period in possession of a greater stock of capital, which will probably give him a greater percentage return (on the assumption that all other entrepreneurs act in the same way, but that the consequent increase of capital will not lead to proportionally greater reduction of interest, i.e. that the elasticity of the demand for capital under the new conditions is greater than

unity). In this case his net income would at the end of the transition period suddenly increase, a change which does not correspond to the postulate that income should remain constant from the moment when the impending change becomes known.

Or we may assume that during the transition period he continues to reinvest amortisation quotas of the same magnitude as before. In this case his expenditure on consumers' goods will gradually increase during the transition period as the rate of interest increases, his capital will remain the same in money value, and will give him from the moment the anticipated change has actually occurred onwards, a permanently higher income. This again clearly does not correspond to the

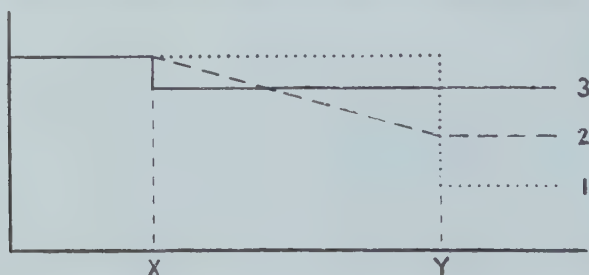


assumption that he disposes of his resources in such a way, that in the light of his knowledge he may at every moment expect a **constant income stream**.

To do so he would have to raise his consumption, at the moment the impending change becomes known, to a level at which it can be permanently maintained. This implies that during the transition period he will increase his consumption and reduce his reinvestment to such a figure that at the end of the period he will be in possession of a quantity of capital which, although in every conceivable dimension it may be smaller than that he owned before, will at the higher rate of interest give him an income equal to that enjoyed during the transition period, and higher than that which he had before the change became known.

These alternative policies of the capitalist can easily be depicted by means of a diagram. The alternative income streams are here represented by the lines marked 1, 2, and 3

respectively. The ordinate for every point of the abscissa, on which time is measured, represents the magnitude of the income stream at that moment. The change is supposed to occur at Y, and to be first foreseen at X (which precedes Y by at least the maximum investment period). The line 1 then represents the income stream of the capitalist who goes on spending during the transition period XY as much as he did before, and thereby increases his capital in money terms, line 2 that of the capitalist who gradually increases his consumption and keeps his capital in money terms constant, and line 3 the income stream of the capitalist who immediately raises his consumptive expenditure to the level at which it can be permanently maintained (i.e. until some further change occurs), and thereby decreases the money value of his capital.



There is no difficulty in applying the same kind of analysis to the reverse case of an expected decrease of the return from capital, or to almost any other type of change that may be foreseen. If the shift of demand, instead of taking place from a less to a more capitalist line of industry, takes the reverse direction and the rate of interest is therefore due to fall, then a similar choice arises. Either the capitalist will anticipate the fall in his income and reduce it immediately in order to avoid, by an increase of his capital in monetary terms, the full force of the later reduction which would otherwise be inevitable (case 3). Or he will only gradually reduce it as his gross receipts from capital fall (case 2). Or he will maintain his expenditure until the change actually takes place, and so reduce even the money value of his capital, from which henceforth he will draw a smaller percentage return (case 1).

Action of the type 3, which I suggest in both cases comes nearest to what is really aimed at by capital accounting, but does not imply the maintenance of any dimension of capital as such, means in other words that the capitalist treats his gross

receipts during the transition period as a terminable annuity of which he wants to consume no more than such a constant amount, that the sinking fund accumulated at the end of the period will secure him the same income in perpetuity. It is such action, which in my opinion best fulfils the purpose for which it is commonly desired to keep capital intact, from the point of view of the individual capitalist. It remains now to show what such action implies in the case of other types of changes, and what will be the effect of such action on the part of the capitalists on other incomes.

There is little more to be said about the effects of changes in the supply of factors, or—what is fundamentally the same thing—changes in technology. Since even an initial change in consumers' demand brings about changes in the relative scarcity of the different factors, there is really here no new problem beyond those already discussed. The anticipation of the forthcoming change will require the same kind of decision, and if the capitalist wants to keep his income stream constant after the impending change becomes known, he will have to redivide his changed gross receipts on the same principles as shown before. If, for instance, the supply of a factor of production is expected to decrease, or the production of a commodity in some other way to become more difficult,¹ or if on the other hand the discovery of new natural resources, or the invention of a new process facilitates the production of a commodity, this will again, as soon as the impending change becomes known, affect the decisions of the capital owners in a double way: it will affect the magnitude of the gross receipts from capital by way of the changes in the prices of the other factors that will occur in consequence of the adjustments to the expected change, and it will affect the return to be expected from the reinvestment of capital. The decision of the capitalists will accordingly depend in the same way on the effect of the change on the relative productivity of capital and the other factors, as was true in the former case. If the capitalist acts on the principle we have described as being most in accordance with what is the most obvious purpose of "maintaining capital intact," he will tend to let the money value of his capital decrease when in the future it promises to give a greater

¹ Negative inventions, although apparently an absurd idea, are unfortunately by no means impossible. Losses of knowledge already possessed do occur, particularly in the field of economics, and the most glaring instance of this sort is, of course, the recrudescence of protectionism with its erection of negative railroads, to use Bastiat's very appropriate phrase.

percentage return, because he will anticipate that greater future return; and he will attempt to increase the money value of his capital by reducing his expenditure immediately when he expects in the future a lower percentage return.

While in this way the capitalist will minimise the fluctuations of his own income, his action will rather tend to accentuate the effect of the change on other incomes. At least, if instead of acting in this way he would try to keep the money value of his capital constant (and still more if he acted according to the third alternative—case 1—i.e. if he kept his consumption constant until the expected change actually occurred), the incomes of the other factors would have to change to a much smaller degree than in the case where he aims at keeping the income from his capital constant. In the case where the marginal productivity of labour tends to fall and that of capital to rise, wages would have to fall less if the capitalists kept at least the money value of their capital constant and still less if they increased it. And in the reverse case wages would rise less if instead of maintaining or even raising the money value of their capital, capitalists allowed it to decrease. But there is little reason to assume that they will act in this way. Even where the capitalists do not want to keep their income constant under all circumstances but where, as will probably be the case to some extent, every increase of their expected income will induce them to plan for a gradually increasing consumption, i.e. to save, and perhaps an expected decrease in their income will in the same way induce them to plan for a decreasing consumption, i.e. to dissave, this is not very likely to result in a maintenance of the monetary value of capital (i.e. to make their action similar to case 2 above). One would have to assume a very peculiar shape of the indifference curves expressing the “willingness to save” of the capitalists in order to obtain such a result.

V

OBSCOLESCENCE AND ANTICIPATED RISKS

There remain two special cases to be considered before we abandon the assumption of correct foresight on the part of the capitalists. The first is obsolescence, as distinguished from wear and tear, as a cause of destruction of existing capital values. Although at first it may appear otherwise, this is a

phenomenon which will occur even with perfect foresight. The second case on the other hand is somewhat intermediate between that of correct and incorrect foresight; it is the case where the probability of the occurrence of certain changes is correctly and equally foreseen and estimated by all members of the society. Since this case also raises the problem of obsolescence, it is convenient to treat the two cases together.

The first case would hardly require much discussion if Professor Pigou had not originally excluded obsolescence from the capital losses which have to be made up by new investment if capital is to be maintained intact. Obsolescence in this sense occurs everywhere where the usefulness of any piece of real capital diminishes faster than it decays in a physical sense. There can be no doubt that many investments in actual life are made with complete awareness of the fact that the period, during which the instrument concerned will be useful, will be much shorter than its possible physical duration. In the case of most very durable constructions like the permanent way of a railroad, the prospective "economic life" ought to be regarded as considerably shorter than the possible "physical life." In many cases it lies in the very nature of the product that it must be made almost infinitely durable, although it is only needed for a very transient purpose. It is impossible to adjust the durability of a machine to the short period during which it may be needed, and in many other cases the strength needed from a construction while it is used necessitates it being made in a form which will last much longer than the period during which it is needed.

In all these cases it is known beforehand that the stream of receipts to be obtained from the investment is limited, not only to the period for which the good will last physically, but for the shorter period during which it can be used. The capitalist who aims at a constant income stream will have to take this into account in deciding about the division of his gross receipts between consumption and amortisation. He will again have to treat the gross receipts as a terminable annuity, and to consume no more than such an amount that the sinking fund accumulated at the end of the period will give him in the form of a perpetual income. This means that he will have to put aside amounts proportional, not to the physical wear and tear, but to the decrease in the value of the investment.

If, instead of acting in this way, he would, as Professor Pigou suggests, at the end of every accounting period put

aside out of his gross receipts only such a part of the value of the instrument as is proportional to the physical deterioration that has taken place during the period, this would clearly mean that he would consume considerably more than he could expect to derive from the much smaller sinking fund accumulated when the instrument ceases to be useful.

The significance of such a decision on the part of the capitalist becomes particularly clear if we consider the case where the capitalist has to choose between two investments of equal cost, both represented by equally durable instruments, but one of the kind that is expected to remain useful so long as it lasts physically, while the other serves a very transient purpose. Under what conditions will he consider the two investments as equally attractive? The first answer is, of course, if they promise him the same permanent income. But under what conditions do they promise him the same permanent income? If the gross receipts from the investments while they flow were in both cases equal and just sufficient to provide the same income *plus* an allowance for depreciation proportional to the physical deterioration, the effect would clearly be that in the case where the instrument ceases to be useful long before it has worn out physically, only a fraction of the sum originally invested would have been recovered which would bring only a much lower income in the future. To decide for this alternative would mean that an income stream which starts at a given magnitude but decreases later on is treated as equal to an income stream which is permanently kept at the initial magnitude of the former. In order that investment in the instrument of only transitory usefulness may appear equally attractive as that of lasting usefulness, it would be necessary that, while the former remains in use, it would produce gross returns sufficiently large to allow for full amortisation of its original value. In other words, only if the expected returns cover, in addition to the same income, not only depreciation in the narrower sense but also obsolescence, can the two investments be regarded as equally attractive.

Thus, to neglect obsolescence, in deciding about the investments to be chosen, would in the same way frustrate the endeavour to keep the income stream at any definite level, as would a neglect of depreciation proper. In fact, from a purely economic point of view, there is no real difference between depreciation and obsolescence. Whether an instrument ceases to be useful because of physical decay, or for any other reason,

makes no difference to the capitalist, when he has to decide whether it is worth while to invest in it or not.

That there could exist any doubt whatever about this point is probably due to the fact that, while the case where it is definitely foreseen that an instrument will become obsolescent at a certain date is by no means rare, it is not the case of which we think in the first instance when we speak of obsolescence. Of much greater practical importance than this case, where an instrument has for technical reasons to be made more durable than is really needed, is the case where it has been given a greater durability than turns out ultimately to have been necessary, because the period during which it would be needed was not known for certain. In so far as the effects of completely unforeseen and unforeseeable changes are here concerned, we shall consider them only in the following section of this paper. But, as has already been mentioned, there is an intermediate class between this case and that of complete foresight, the case where a definite probability exists and is generally known that a change will occur. And this case, as will be shown, is fundamentally similar to that just discussed, in the sense that here, too, the anticipated risk of obsolescence has to be taken into account if capital is to be maintained intact.

The capitalist who considers a number of different investment opportunities will usually find that they promise different returns with different degrees of probability. And while the degree of certainty with which he will be able to predict returns may be fairly high in so far as the immediate future is concerned, uncertainty will generally be much greater as regards the period during which he may hope to receive these or any returns. But while he will be unable to predict with certainty the periods during which he may expect returns in the different cases, he will have fairly definite ideas about the different degrees of probability that they will give returns for longer or shorter periods. In his choice between different investment opportunities, these estimates of the probable periods after which they will cease to give returns will play an important role. He will evidently consider an investment, where the risk, that it will soon cease to give any returns, is greater than in other cases, only if the gross returns are such that he can expect to amortise the capital sunk in it during a correspondingly shorter period. Only when he distributes his capital in such a way between the different investment opportunities, that the gross returns cover the probable rate of

obsolescence, can he hope to obtain a constant income stream. If he acts in this way, and if his estimates of the probabilities were correct, even if in none of the individual cases he should have guessed quite correctly, his losses are likely to be balanced, so that on the whole he will succeed in maintaining his income stream constant. This presupposes that his investments are sufficiently numerous and diverse to make such compensation possible, and that in the cases where he makes unexpected profits, i.e. where the investment continues to bring returns after its original value has been fully amortised, he does not treat these profits as net income, but he uses them to offset the losses suffered from other investments. Where the investments of the individual capitalists are not sufficiently numerous and diverse to make such internal compensation possible, the same results will follow for the capitalists as a class, provided again that those who make profit do not consume them but use them, or at least the greater part of them for new investment. Is there any reason to expect that in this case the capitalist, following the general principle we have regarded as normal, will behave in such a way? This brings us to the general question of how the capitalists will react on an entirely unforeseen change.

VI

THE REACTION OF THE CAPITALIST ON UNFORESEEN CHANGES

The changes whose effects we have now to study differ from those considered in the earlier parts of this paper by the fact that they are not foreseen but become known only when they actually occur (or at least some time after the investment affected by them has irrevocably been made). That is, we abandon at this point the assumption of more or less complete foresight on the part of the capitalist, and ask how he will have to act when an unexpected change affects the returns from an investment, to which he has already committed himself, if he wants to keep his income stream from that moment onwards constant.

The owner of any piece of real capital, who finds that in consequence of such an unforeseen change the gross returns which he may expect during the remaining "life" of that instrument will be either greater or smaller than he had

anticipated, will have to choose between the same main types of action as those discussed in connection with a foreseen change. If we consider only the case where, in consequence of the change his gross receipts have decreased, he may in the first instance consume, during the remaining "life" of his investment as much as before (if the gross receipts are still as great as the amount he used to consume) and reduce only his depreciation allowance. The effect of this would be that when the returns from the investment cease he will only have accumulated a sinking fund considerably smaller than what would be necessary to give him an income equal to that enjoyed up to that moment. Or, in other words, he would have maintained his consumption after the change has occurred at the pre-existing level at the expense of an inevitable later reduction of his consumption, a reduction which would clearly have to be greater than if he had immediately reduced his consumption to a level at which it could be permanently maintained. To act in the latter way, i.e. again to treat the gross receipts to be expected during the remaining life of the investment as a terminable annuity, whose capital value is to be maintained constant, would evidently be the only course of action consistent with the aim of a constant income stream. The third possibility would be to continue, after the change has occurred, so far as possible the same allowances for depreciation and to reduce consumption to what remains beyond this, if anything does remain. In this way it would be possible in many cases to recover the full capital value originally invested. But could this properly be regarded as maintaining the capital constant? It would mean that the owner would have to reduce consumption for a period below the level at which it could be permanently maintained in order to increase it later above that level. It seems that this would have to be regarded in every sense as new saving, saving it is true to make up for a loss, but for a loss which has already occurred. This loss was irrevocably incurred when the investment was made in ignorance of the impending change.

The same applies, *mutatis mutandis*, to the case of profits due to an unexpected change. If, after a change which has increased the gross returns from his investment, the owner wants to keep his income permanently at the same higher level, this means that he must only consume so much of the gain as to leave an amount which, reinvested at the current rate of interest, would give him the same additional income in perpetuity.

If, for instance, his additional receipts after the change are £210, and the rate at which he can reinvest is 5 per cent., he must only consume £10, and invest the remaining £200, which at 5 per cent. will give him the same returns in every future year. Such "windfall profits" are, therefore, not income in the sense that their consumption is compatible with maintaining capital intact. Also consumption need not be reduced by the amount of "windfall losses" in order to maintain capital intact. In both cases only the current interest on the (positive or negative) capital gain ought to be counted as income.

This principle applies, whether the change in question was completely foreseen, or whether it is a change, the probability of whose occurrence was anticipated, but which does not occur at the moment that was regarded as most probable. The difference between the two cases is that where the probability of the occurrence of the change was correctly anticipated, deviations of the individual cases from what was regarded as most probable are likely to balance in their effect, so that capitalists as a whole will succeed in keeping their income stream constant. But, where the changes were completely unforeseen, there is no reason to expect that gains and losses will balance in this way, so that at least total incomes from capital would remain constant. It is much more likely that in such a case, if the capitalists behave as described, it will have the effect of either permanently decreasing or permanently increasing the income from capital.

Of the different types of changes which would have to be considered in the exhaustive discussion we may confine ourselves here to that of an invention, which is in many ways the most interesting. The application to the case of a shift in demand between different types of consumers' goods, or of changes in the supply of factors, will present no difficulty. In so far as the invention is concerned, two kinds of effects have to be considered; on the one hand the possibility of a loss of capital invested in plant that is made obsolete by the invention, and on the other hand, the possible gains on plants and stock which, at least during a transition period, may bring higher returns than was expected. Although there is some reason to suppose that any unexpected change is much more likely to lead to considerable capital losses than to capital gains, it is not impossible that in the individual case the gains may be greater than the losses.

The conditions, which must be given, in order that it may

be advantageous to introduce newly invented machinery for the production of a commodity, which up to the present has been produced by a different still existing plant, are too well known to need more than a short restatement.¹ In order that the invention should lead to the complete abandonment of the old machinery, it would be necessary that it should reduce the total cost of production below the prime cost of running the old plant (or, quite exactly, to such a figure that the difference between it and the prime cost is lower than the return to be expected from the investment of the scrap value of the old plant). In this case the capital value of the old plant would be completely destroyed (or reduced to the scrap value of the plant). Much more frequently will it be the case that, while the new invention does not result in a sufficient lowering of cost to drive the old plant out of business altogether, it will make an increase of sales at the reduced price possible. In this case only the additional output will be produced by the new process, and the value of the old plant will be reduced to a figure corresponding to the capitalised value of the lower surplus over running costs, which is henceforward to be expected. In all these cases capital losses will occur, which may be further increased by a rise in the rate of interest, which may be the general effect of the increased demand for capital caused by the new invention. In so far as such a rise in the rate of interest takes place, the losses in capital values caused thereby are not inconsistent with maintaining capital (i.e. income from capital) constant in our sense.

Capital gains will occur in consequence of an invention—apart from the increases in capital values of natural resources, like mineral deposits and other non-reproduceable factors—mainly during such transition periods until it is possible to increase the supply of particular instruments, which are now also required in the newly invented process. If, e.g. the new machinery required can be produced only in a particular plant, which before was expected to be used up only very slowly over a long period, and if it takes a long time to erect an additional plant of the same sort, the owner of the existing plant will clearly be able to make considerable and unexpected profits during the interval. Since these profits will be of a temporary character, he ought not to regard them as ordinary

¹ Cf. Pigou, *Economics of Welfare*, 4th ed., p. 188, Robbins, *An Essay on the Nature and Significance of Economic Science*, 1932, pp. 50 *et seq.*, and my inaugural address "On the Trend of Economic Thinking," *ECONOMICA*, May 1933.

income, but to reinvest so much of it as will secure him in perpetuity an additional income equal to that which he actually consumes during the transition period.¹

VII

THE IMPOSSIBILITY OF AN OBJECTIVE STANDARD WITH DIFFERENT DEGREES OF FORESIGHT

So far the criterion, for what is to be understood as maintaining capital intact on the part of the individual entrepreneur or capitalist, is purely subjective, because it depends on the extent to which the individual capitalist foresees the future. Entirely different actions by two capitalists who hold different views on the future, but who are otherwise in exactly the same position, may satisfy our criterion. Both may, in the light of their different knowledge, do their best to obtain a constant income stream, and yet both will probably fail, earlier or later, and in different degrees. Are we to say that neither has been maintaining his capital, and ought we to reserve this term to the case of action with perfect foresight? In a world where very imperfect foresight is the rule this would clearly lead to absurd results. We should not only have to say that nobody ever succeeds in maintaining his capital intact—which in a sense of course would be true—but we should also be prevented from using this concept of maintaining capital intact as a description of the actual behaviour of the entrepreneurs, who want neither to decrease or to increase their income from their possessions. Taking into account the fact that human foresight is of necessity very imperfect, and that all economic activity must be based on anticipations, which will partly prove incorrect, it would still seem desirable to find a criterion which would enable us to distinguish between losses—or rather missed opportunities of faster improvement—which are unavoidable in view of the unpredictability of the change, and capital losses due to what appear to be avoidable mistakes.

At first one might feel inclined to base the definition of what

¹ It is not possible here to enter into a discussion of the distinction between capital-saving and labour-saving inventions. But it should be clear that at least the older concept of capital-saving inventions which was based on the idea that capital which in the past was used in the industry affected by the invention will in consequence become available for use elsewhere, assumed a kind of capital maintenance which will not occur in the real world. The part of the capital embodied in the now antiquated machinery will be lost at the same time as it becomes "superfluous."

is to be regarded as adequate maintenance of capital on such a degree of foresight as the intelligent capitalist can reasonably be expected to possess. But closer examination of the problem soon reveals that any attempt to find an objective test of what can be regarded as maintenance of capital, short of the case of absolute foresight, must necessarily fail. It seems common-sense to say that if an entrepreneur expects a change in taste, e.g. because he hopes to interest the public in a novelty, but is disappointed in his expectations, and loses the capital invested in the venture, this is a loss of capital which must be made up out of new savings, if capital is to be kept intact. If this did not happen, and similar failures were frequently repeated, the capital available for the production of things which people want would be considerably reduced by conversion into equipment for making things which nobody wants. On the other hand, the loss of capital due to an unforeseen change in taste seems merely the incidental and unavoidable concomitant of a process leading to what is now a preferred income. Yet if entrepreneurs had correctly anticipated the change—and some entrepreneurs may have done so—the wants of the public would have been supplied even better. Is, therefore, the loss of the entrepreneurs, who did not foresee correctly, to be counted as a capital loss to be deducted from gross output? and does it already mean that they might have foreseen the change if a single happy speculator chanced to do so, who, according to all reasonable expectations should have proved to be a waster of capital?

It is not possible to base the distinction here on the concept of a change, and to say that to invest in anticipation of a change which does not occur is wasting capital, while to invest in the mistaken assumption that things will remain as they are is only a cause of unavoidable loss. In the first instance, it is by no means evident what is to be regarded as a change. If a temporary change is mistakenly considered as permanent, or if the expectation that the seasonal fluctuations of the past will be repeated is disappointed, are these to be regarded as mistaken expectations of a change, or as a mistaken expectation that things will remain constant? Clearly in economic life, and outside of a fictitious stationary state, the concept of a change itself has frequently no meaning except in the sense of a change relative to expectations. In the second place, and even more important, an approximately correct anticipation of the majority of "changes" in the usual sense is an indispensable condition

of that degree of progress which is observed in actual life. One need only consider for a moment what would happen if entrepreneurs always acted as if things would remain forever as they are at present, and changed their plans only after a change in demand (or some other change) had actually occurred, in order to see what would necessarily be the effect on general productivity. Every change would mean an enormous loss, or rather, the adaptation of production to the change would become so expensive (not because the loss on existing investment would have to be counted as cost, but because the "free capital" required for the new production would be so scarce) as to make it in many cases impossible. How rich, on the other hand, should we now be if all past changes had been correctly foreseen from the beginning of things!

All this means simply that the mobility of capital, the degree to which it can be maintained in a changing world, will depend on the foresight of the entrepreneurs and capitalists. If this is a commonplace, it is at least a commonplace to which far too little regard is paid in usual reasoning. It means nothing less than that the amount of capital available at any moment in a dynamic society depends much more on the degree of foresight of the entrepreneurs than on current saving or on "time preference." This is simply a corollary to the equally obvious and neglected fact that "capital" is not a factor, the quantity of which is given independently of human action even in the comparatively short run. How great a contribution to the possibility of satisfying human wants a given stock of capital goods will still represent some time later, will depend largely on how correctly the entrepreneurs foresee the situation at this moment. Their anticipations in this respect are quite as important a "datum" for the explanation of the dynamic process as the "stock of capital," and the latter concept has in fact little meaning without the former. As an enumeration of individual capital goods existing at the beginning, the "stock of capital" is of course an important datum, but the form in which this capital will still exist some time afterwards, and how much of it will still exist, depends mainly on the foresight of the entrepreneurs and capitalists. It would probably be no exaggeration to say that to maintain his capital so as to receive the greatest lasting return, is the main function of the capitalist-entrepreneur.¹ But not only is in this sense the size

¹ In this connection it is hardly possible to draw a sharp distinction between the entrepreneur and capitalist.

of the productive equipment of society dependent on the success of the entrepreneur, it is also dependent in a world of uncertainty on his capitalising capital gains ("windfall profits"). It should be recognised that much of the new formation of capital equipment (which need not represent net additions to capital in the traditional terminology) does not arise out of savings proper, but out of those gains of individual capitalists which are part of the process of capital maintenance. This process will, as shown above, always involve unforeseen profits on the part of some and unforeseen losses on the part of other entrepreneurs, changes on capital account, which are part of an ever-proceeding process of redistribution of wealth, not to be confused with the distribution of income. The entrepreneur who finds that a risky undertaking succeeds, and who for a time makes extraordinary profits because he has restricted the amount of investment so as to give him in case of success a margin of profit over cost which is proportionate to the risk, will not be justified if he regards the whole profit as income. If he aims at a constant income stream from his investment, he will have to reinvest such part of his profits as will be sufficient to give him an income equal to the part he has consumed, when the rate of profit in what has now proved to be a successful line of business falls to normal.¹ It is in such a way that, in case of changes in demand or technical progress, etc., capital is newly formed without new saving in place of that which is lost elsewhere. There is, of course, no reason to assume that the capital lost and that which is newly formed will correspond in any quantitative sense; and it is exactly for this reason that the usual concept of a net change in capital, which is supposed to correspond in some way to saving, is of little value. There has in this case been no abstention from consumption which could have been maintained at that level. If anybody can be said to have refrained from consumption which would be compatible with enjoying the same income permanently, it is not the entrepreneurs, but rather the consumers who for a time had to pay a price in excess of the cost which the production of the commodity entails after it has proved an assured success. But this "saving" is of course neither voluntary nor does it represent an abstention from consumption, which could have been regarded as permanently possible so long as the outcome of the

¹ It is of course possible that he regards himself as so much more clever than his competitors that he will count on being able to make permanently supernormal profits of this sort. To this extent he would be quite justified in regarding them as income.

venture was uncertain. It can hardly be questioned that in the actual world a great deal of the equipment which is made necessary by some change is financed out of these temporary differences between cost and price. But it may appear somewhat paradoxical that where it can be provided in this way this ought not to be classed as saving but as a capital gain, a kind of transfer of capital which means that not only new capital is formed in place of that lost elsewhere, but that it is formed exactly where it is most needed, and in the hands of those most qualified to use it; this follows, however, necessarily from the consistent use of the definition of maintaining capital and saving, which we have adopted. It will be shown in the next section that this use of the terms proves convenient in other directions also.

VIII

“ SAVING ” AND “ INVESTING ”

The upshot of the discussions of the last sections is that if changes in the data occur (such as new inventions, shifts in consumers' demand or changes in the supply of factors), the amount of capital (conceived as a multiple of the income of a given period, or—what amounts to the same thing—the result of a certain “ average ” waiting period, or in any other conceivable quantitative sense), which is available and required to maintain income from then onwards at a constant level, will change also, and that in consequence there is no reason to expect that any of the conceivable dimensions of capital will remain constant. It remains true, of course, that *ceteris paribus* it is necessary to maintain or replenish a reservoir of goods of a constant size, in order to maintain a given output. But when conditions change so as to make a smaller or larger reservoir necessary for the same purpose, its contents will tend to change automatically in such a way as to preserve income constant from the moment when the change becomes known. The fact that an impending change is likely to become known to different people at different times will lead to capital gains and capital losses of individuals, with the effect that persons who have shown the greatest foresight will command the greatest amount of resources. But in a world of imperfect foresight not only the size of the capital stock, but also the income derived from it will inevitably be subject to unintended

and unpredictable changes which depend on the extent and distribution of foresight, and there will be no possibility of distinguishing any particular movement of these magnitudes as normal.

These conclusions have rather far-reaching consequences with respect to the much used, or much abused, concepts of saving and investing. If the stock of capital required to keep income from any moment onwards constant cannot in any sense be defined as a constant magnitude, it becomes also impossible to state that any sacrifices of present income in order to increase future income (or the reverse) must lead to any net changes in the amount of capital. Saving and investment in the ordinary meaning of the terms are, of course, one of the causes, but by no means the only cause, which affect the magnitude of capital (in any conceivable quantitative sense), and the changes in the size of the capital stock cannot therefore be regarded as indications of what sacrifices of present income have been or are being made in the interest of future income. This idea, appropriately enough for the analysis of the effects of a change under otherwise stationary conditions, must be completely abandoned in the analysis of a dynamic process. If we want to retain the connection between the ideas of saving and investment, and that of a sacrifice of potential present income in the interest of future income (and it will be shown that it is this concept which is of importance in the connection in which those terms are commonly used), we cannot determine the size of either saving or investment by any references to changes in the quantity of capital. And with the abandonment of this basis of the distinction, there will, of course, have to fall the habitual practice of economists of separating out such part of general investment activity as happens to leave the capital stock in some sense constant, as something different from activities which add to it, a distinction which has no relationship to anything in the real world.¹

To deny that the usual distinctions between new and merely renewed investment, and between new savings out of net income and merely maintained savings, as distinctions based

¹ The same applies, of course, in an even stronger degree to the assumption implied in this distinction that the activities which lead to such net increases of capital are in any way subject to a different set of determining influences from those which lead to a mere quantitative maintenance. This should always have been obvious from the mere fact that when additions in this sense are being made (i.e. if capital increases in the usual terminology) this will always affect the concrete form of the new capital goods by which the old ones are replaced.

on the idea of quantitative increases or decreases of capital, have any definite meaning, is not to deny that they aim at a distinction of real importance. There can be no doubt that the decision of the consumers as to the distribution of consumption over time are something separate from the decisions of the entrepreneur-capitalist as regards what quantities of consumers' goods to provide for different moments of time, and that the two sets of decisions may or may not coincide. What I do want to deny is only that the correspondence or non-correspondence between these two sets of conditions can be adequately expressed in terms of a quantitative correspondence between (net) saving and (net) investment. But if this distinction is not to be formulated in this particular way, what are we to put in its place? In general terms the answer is not difficult. If we must no longer speak in terms of absolute increases and decreases of capital we must attempt a more direct comparison of the time distribution of income. Capital accounting, as has been mentioned before, is itself only an abbreviated method of effecting this comparison in an indirect way, and when this indirect method fails it is only natural to go back to its *rationale*, and to carry out the comparison explicitly. Instead of comparing them each with the supposed standard case of capital remaining "constant," and so arriving at the concepts of net saving (net income *minus* consumption) and net investment, and then to juxtapose these derived concepts, we shall have to compare directly the intentions of the consumers and the intentions of the producers with regard to the income stream they want to consume and produce respectively.

The question, then, is essentially whether the demand for consumers' goods tends to keep ahead of, to coincide with, or to fall behind the output of consumers' goods irrespective of whether either of the two magnitudes is increasing, remaining constant or decreasing in an absolute sense. But in order to give this question a clear meaning we have yet to settle in terms of what are the demand for and the supply of consumers' goods to be measured, in order to establish whether they coincide or whether the one exceeds the other. In a sense of course demand and supply are always equal, or made equal by the pricing process, and to speak of their relative magnitudes presupposes some unit in terms of which their magnitude is measured independently of the prices formed on the market.

Consider first the decision of the "savers," or the body of consumers as a whole. What we can assume of them is, not

that they will under all conditions aim at an income stream of a particular shape, but that if they are offered a present income of a given magnitude, *plus* the sources of a future income of a certain magnitude, they will attach certain relative values to these incomes. For every such combination of a given present income and the sources of a certain future income we must assume these relative valuations to be determined.

If the relative value consumers attach to the sources of future income, compared with present values, should be higher (or lower) than the cost (in terms of present income) of reproducing new sources of future income of the same magnitude, more (or less) such sources will be produced. And assuming that the relative valuations of the consumers do not change abruptly—which is least to be expected when in each successive period the available income is equal to that for which they have planned—then production will tend to provide in each successive period such amounts of present income and sources of future income, that their relative cost (in terms of each other) will approximately correspond to the relative values attached to them by the consumers. But if for some reason—say because additional money has become available for investment purposes—the price of the sources of future income have been raised out of correspondence with the valuation of consumers, more sources of future income and less current income will be provided for the next period than consumers will be then willing to take at prices corresponding to their relative cost. Consumers will find that they get less current real income, and in consequence will attach a greater value to it compared with the sources of future income—investment will have exceeded saving in the usual terminology.

Under the assumption of otherwise constant conditions (i.e. unchanged knowledge, taste, etc.) this process can be described in the familiar way in terms of changes of the investment period, to which correspond changes in the quantity of capital (in terms of income of a period). We would say that, by increasing the waiting period and thereby accumulating more capital, producers have caused a temporary gap in the income stream which leads to a relative rise in the prices of consumers' goods. But as soon as we drop this *ceteris paribus* assumption this is no longer true. The correspondence between the value attached to the sources of future income and their cost is then no longer dependent on the cost of reproducing the same amount of capital, which under changed

conditions will make it possible to produce the same future income.

Additional investment, in the sense that total output is reduced for a time in order to increase it at a later date, may take place, although at the same time the quantity of capital is reduced (and the "period of production" shortened).¹ Breaks in the even flow of consumers' goods, which make corresponding changes in the attitude of the consumers necessary if disturbances are to be avoided will only occur when that quantity of capital is not maintained which under the conditions prevailing at any moment is required to provide such a constant flow.

The correspondence between the supply of current consumers' goods and the demand for them, which is what has been aimed at by the saving-investment equations, can only be stated adequately if we measure both supply and demand in terms of the alternatives open to consumers and producers under the circumstances existing at the moment.² To do this it seems necessary to abandon entirely the concepts of saving and investment as referring to something beyond and outside the normal process of maintaining capital quantitatively intact, and to substitute an analysis on the lines suggested, which does not try to separate "old" and "new" investment, and "new" and "maintained" saving as distinguishable phenomena. Or, if we want to retain the familiar terms and to use them without any reference to changes in the quantity of capital, we might say that "savings" correspond to "investment" when the value of the existing capital goods (in terms of consumers' goods) is such that it becomes profitable to replace them by the capital goods that are required to produce the income in the expectation of which people have decided currently to consume as much as they actually do. I believe that some theories, which used to be stated in terms of net

¹ This does not, of course, affect the fundamental proposition that the additional saving is required to make an extension of the process of production possible compared with the time dimension that would be possible without this saving.

² All this might apparently have been explained in simpler fashion by comparing the cost of the output of consumers' goods coming on the market during a given period with the expenditure on this output (or by comparing the share of all factors of production which have contributed to the output of a given period with the share of their income which is spent on the output), if it were not for the fact that the concept of cost (and, of course, income) is itself dependent on the concept of maintaining capital intact. This way of stating the relation would be adequate only if we count the cost (in terms of present consumption) which is required, *not* to keep capital intact in some quantitative sense, but to provide sources of so much future income as consumers want to buy at prices covering cost.

saving and net investment, can be restated in terms of these concepts, and I have tried to sketch such a reformulation of my own views in another place.¹ But I am rather doubtful whether the same is possible with some other theories which seem more dependent on the concepts of saving and investing as absolute magnitudes.

All this is, of course, no reason for not using the concepts of absolute increases or decreases of capital under any circumstances. In the discussion of comparatively long-term changes it may sometimes be quite innocuous. And in the discussion of short-run changes it would be equally legitimate to speak of causes, which *ceteris paribus* would lead to increases or decreases of capital. But we must be very careful not to assume that they actually do, and not to base any distinctions on supposed net changes in the quantity of capital which do not actually take place. Particularly the phenomenon of the trade cycle is probably largely concerned with changes within that region of indeterminateness between clear increases and clear decreases of capital, inside which the concept of an absolute change has no meaning. But it remains probably true that net accumulations and decumulations of capital in the usual sense will present similar phenomena as booms and depressions—at least when real accumulation proceeds faster and real decumulation proceeds slower than saving and dissaving.²

IX

CAPITAL ACCOUNTING AND MONETARY POLICY

This discussion of the problems connected with the concept of the maintenance of capital has by no means been exhaustive. We have touched on many points which have not been cleared up, and there are many others equally important which have not even been mentioned. This is, however, unavoidable in an article which treats what is in many respects one of the central

¹ "Preiserwartungen, monetäre Störungen und Fehlinvestitionen," *Nationalökonomisk Tidskrift*, vol. 34, 1935.

² Ricardo seems to have seen clearly the difficulties which exist in this connection when he wrote: "The distress which proceeds from a revulsion of trade is often mistaken for that which accompanies a diminution of the national capital and a retrograde state of society; and it would perhaps be difficult to point out any marks by which they may be accurately distinguished." *Principles*, ch. xix, *Works*, edition McCulloch, p. 160.

problems of economic dynamics. But there is one further problem of great importance on which some remarks must be added in this concluding section.

Up to this point we have been largely concerned with an attempt to derive the appropriate action from the *rationale* of "maintaining capital intact," but we have said little about the effects of the actual practice of the entrepreneur, that "abbreviated method" which consists in regarding capital as a money fund of definite magnitude, and on which actual capital accounting is based. This practice is, of course, largely due, and partly justified, by the fact that the capital of the individual enterprise is to a great extent furnished in the form of money loans, and that in consequence the entrepreneur has in the first instance to provide for a repayment of the money loans.

It was also this practice of treating capital as a money fund which has given rise to the theoretical concept of capital as a quantitatively determined fund. But while the actual use of this concept in real life does not mean that we have to accept it as the basis of theoretical analysis, and does not relieve us from the duty of going back to the *rationale* of its use, the results of this theoretical investigation are little more than a starting point for a study of the effects of the actual practice.

A more exhaustive investigation would, therefore, have to proceed after this preliminary clearing up of the fundamental concepts to the main task of explaining what the effects are of the actual accounting methods used by capitalists, to what extent, and under what conditions, they fulfil their purpose, and when they fail. That there are cases where the rigid application of the money fund concept fails is, of course, generally recognised and to some extent taken account of in the distinction made between changes on income account and changes on capital account. It is also obvious that the results achieved by this method will be largely dependent on monetary policy. Of course, no monetary policy can make the money value of capital behave in such a way that a constant value will always correspond to a quantity of capital which will give the same real income, and that all attempts to increase the future output of consumers' goods at the expense of the present and *vice versa* will lead to corresponding changes in the money value of capital; and in consequence a policy of the capitalist-entrepreneur which aims at nothing but this, will always err to a considerable extent, i.e. will lead to positions where their distribution of resources between current consumption and the

provision of future consumption is not in accord with consumers' preferences. But the degree to which capital accounting in terms of money will prove deceptive will depend on the particular monetary policy followed.

To realise these effects in different situations would require a fairly detailed analysis of a number of representative instances. It is only possible to discuss here in the most general way one case, probably the most important and the one which has received the greatest attention in recent discussion; that of a continued increase in output due to "technical progress." Now, in spite of all the complications discussed before, it still remains true that *in any given situation* the value of capital required to provide an income stream at a certain constant or increasing rate will have to stand in a definite proportion to the value of current income. This proportion will change with any change in the relevant data, but where we have to deal with a development from moment to moment it is still approximately true to say that in order that the replacement of capital be sufficient to maintain the income stream at least at a constant rate its value should maintain a constant proportion to that of income. With the money value of capital being kept constant this will evidently only be true if the money value of aggregate income be kept constant also. Any policy which increases the money value of current income and particularly a policy which stabilises the average prices of consumers' goods and therefore raises the aggregate value of income in proportion as real income rises would mean that the money value of capital has to be raised in the same proportion and to be maintained at this increased value if sufficient provision for the replacement of this income is to be made. Any use of the nominal profits of the money value of capital so made for consumption purposes, as would follow from a policy of maintaining money values constant, would lead to insufficient replacement or a consumption of capital in the usual sense.

There can be no doubt that this sort of "paper profits" has played an enormous role not only during the great inflations, but also during all major booms—even if no rise in the absolute level of the prices of consumers' goods has taken place. And even more important than the pseudo-profits computed by enterprises under such conditions are the gains on capital appreciation made on the Stock Exchange. Stock Exchange profits made during such periods of capital appreciation in terms of money, which do not correspond to any proportional

increase of capital beyond the amount which is required to reproduce the equivalent of current income, are not income, and their use for consumption purposes must lead to a destruction of capital.¹ So long as the expansion of credit, which has caused this movement, continues at a sufficient rate, this tendency may be overcompensated and the money value of capital continue to grow. But the monetary demand for consumers' goods fed out of such pseudo-profits will prove too large to permit of a maintenance of capital at a proportional value without constant further expansion of credit. That the increasing money values of capital cannot be maintained without further inflation if the amount of appreciation is generally used for consumption purposes, is, of course, only another form of expressing the truism that capital values, which people in general try to convert into income, cannot be maintained beyond the time during which some outside cause operates in the direction of a further rise. But as soon as the cause of a further rise disappears the inherent tendency to "realise" the nominal profits, i.e. to convert part of the capital into income, will assert itself and lead to a fall even in the money value of capital.

But at this point we must stop. This final sketch of some of the conclusions that seem to arise was only meant to suggest some of the problems out of the wide field which opens up at the point where we left the main investigations. It seems that the approach to which it leads may ultimately help much to judge the significance of actual business practices, particularly the practices of joint stock companies, the different methods of financing and the Stock Exchange. The students of these fields have in the past had little enough help from the theory of capital. The ultimate clearing up of the issues raised in this article should go far to provide them with better tools.

¹ It is in this way, and in this way only, that during a boom the Stock Exchange is likely to "absorb savings."

1935]

French Monetary Policy and Its Critics

By PHILIPPE SCHWOB

MANY English economists, and above all Mr. Hawtrey, in interpreting the movements of gold since the war, seem to assume the Ricardian theory as their undisputed hypothesis. This theory argues that such gold movements can only be caused by price disparities in different countries. No one will deny that this is indeed a factor operating in certain cases, but it is not the only one. In particular, there is great reason to believe that since the war the psychological effect of monetary uncertainty has played a great part in determining the movement of capital, and sometimes in a manner contrary to that which the Ricardian theory would have led one to expect. The following essay is an attempt to demonstrate that this was the case in France after 1926. Mr. Hawtrey, faithful to his own particular theory, is forced to the conclusion that a deflation was imposed on France as a result of stabilisation. He tries to uphold this contention by proving that the circulation was insufficient, but fails to take into consideration one important factor. He overlooks the part played by the velocity of circulation and only pays attention to the quantity of money. This essay attempts to show that he was wrong, and that he has mistaken cause for effect. Once this is admitted, the operation of the Ricardian theory can no longer be invoked, and it becomes necessary to seek an explanation of the facts in a psychological theory of capital movements.

During the first years of the crisis France excited much jealousy among her neighbours on account of her apparent immunity from the depression. She appeared as an island of safety in a sea of despair, and drew upon herself the criticism as well as the envy of the world. Many people thought fit to

regard her as a criminal, and tried to explain the crisis by her selfish policy. In those countries where credit is looked upon as a universal panacea capable of restoring the world economy to its normal life within a very short time, France was accused of deliberately restricting the amount of credit at the disposal of the world in general. To this France could, of course, have replied that the crisis itself had been aggravated, if not caused, by the previous abuse of credit. She could have pointed out that if she remained relatively unhurt it was precisely because she had never allowed herself to fall into the same errors of banking policy as her accusers.

It should be realised that the time-old postulate of an identity between bank credit and money is only one of those traditional illusions which the English, in particular, are more wedded to than they are to factual truth. It has often been shown that an inflation of credit and a monetary inflation are quite different things since the latter creates definitive means of payment, while the former creates means of payment indeed, but ones which have to be repaid at a later date. In the case of a creation of credit, there is involved simply an anticipation of the future, a speeding up of the economic process. But of course, unless care is taken, there is a risk of grave complications when the date of repayment arrives. The risk of such difficulties becomes a certainty as soon as people act on the assumption that credit and money are identical. In order to repay credit new credit is created, and in order to maintain the increasing tempo of economic activity supplementary credits become necessary month by month. In the end, the economic structure takes on the appearance of a pyramid balanced on its point; the smallest disturbance upsets everything. Without dwelling too long, however, upon this particular controversy, an attempt will be made to refute certain accusations brought against France by meeting her accusers on their own ground.

Among the ideas cherished by the Anglo-Saxon world, that of the "sterilisation of gold" is the most frequently ventilated. This particular thesis, it is true, is not without some foundation. It is generally supported by reference to the balances of the Bank of France. After 1926, when M. Poincaré rescued the franc from the gulf into which it was falling, the gold reserves of the Bank of France rose from 1,080 tonnes to a maximum of 4,890 in 1932 (the amounts are given by weight, since this is the only measure which can be relied upon to remain stable). Its "*Actifs divers*," which consist almost entirely of foreign

exchange holdings, rose from $4\frac{1}{2}$ milliards in December 1926 to 33 milliards in December 1928. After that they diminished without interruption, and in December 1932 had reverted to the level of December 1926. The Bank's holdings of commercial paper, however, never exceeded 8 milliards.

Indeed, a gold reserve even of 4,890 tonnes is not extravagant. When gold was in circulation in 1914 the total quantity in France, i.e. gold reserves plus coin, amounted to 2,000 tonnes out of a total world monetary stock of 11,560 tonnes (according to Warren and Pearson). That is to say, France absorbed 17.3 per cent. of all the gold available for monetary use. In 1932, when its stock was largest, she absorbed 25.7 per cent. The difference is an important one, but insufficient to account for a catastrophe of the magnitude of the present crisis. But this is still not the main point. In the growth of the assets of the Bank of France two periods are to be distinguished. Between 1926 and the end of 1928 there was a growth in its holding of bills ($28\frac{1}{2}$ milliards) and a very slight increase in the gold reserve (4.7 milliards). Between 1928 and 1932 there was a rapid diminution in its bills ($28\frac{1}{2}$ milliards) and an even more rapid increase in its gold reserve ($45\frac{1}{2}$ milliards). It is not, therefore, until after 1928 that the question of gold sterilisation becomes acute.

Subsidiary explanations apart, the method by which Mr. Hawtrey, one of the foremost English economists, accounts for this gold accumulation is as follows: As soon as stabilisation had been carried through, he says, the monetary circulation became insufficient for the needs of the French economy. By the end of 1926 the circulation was scarcely five times as great as before the war. Since the French Government deliberately maintained the franc at a fifth of its pre-war value, the circulation expressed in terms of gold was, therefore, roughly the same as in 1913. On the one hand, however, production had increased (the General Index of Industrial Production rose from 100 in 1913 to 126), and on the other, prices were in general higher than before the war. In 1926 the national wholesale price-level (in terms of gold prices) stood roughly at the same level as the Index of Imported Products, namely 130 approximately. The cost of living had risen to 84 and the level of salaries to 103 in Paris (or 118 in the Provinces); in those countries which remained on the gold standard the cost of living at that time was about 170, while the level of salaries stood in the region of 200. According to Mr. Hawtrey, the

Sergent Committee, although it did not recommend a fixed level, insisted that stabilisation would have to be achieved somewhere mid-way between the cost of living and the external level of the exchanges. In order to raise the cost of living within the country to the level of other gold-standard countries, it would have been necessary to stabilise at a rate of about 75 to the pound; but to conform to the level of the foreign exchanges the rate would have to be 125. Mr. Hawtrey appears very greatly to regret that the rate of 100 was not chosen.

Let us return from this digression. *According to Mr. Hawtrey, on the one hand the gold content of the currency at a rate of 125 being a fifth of what it had been pre-war, and, as the purchasing power of gold had decreased, the French monetary circulation was insufficient on the other.* There are two steps to his reasoning. The French circulation would still have been insufficient if the state of the internal market in France were considered alone. But it became even more so under the necessity of adapting itself to the outside world. Let us suppose for a moment that this contention is accurate. The French business economy is clamouring for the creation of notes, but in order to create such notes the Bank of France must necessarily have something to enter in the asset side of its balance. The statutes of the Bank, however, forbid it to use Government securities; commercial paper, as can be seen from the figures quoted above, is distinctly unsuited to this purpose. Only one course remains open: to increase the gold reserve or the holding of bills.

So long as the Bank agreed to buy bills few criticisms were directed against it, for at that time it was indeed England and the United States who were guilty of checking credit. But from the moment when the Bank of France stopped buying bills and began to sell them, it was accused by Mr. Hawtrey of draining gold from the rest of the world. In short, the order of events was supposed to be as follows: insufficiency of the French circulation, a pressing need to increase it, the accumulation of bills, and the sale of these bills, accompanied by the accumulation of sterile gold stocks.

In what follows this argument is attacked at its very foundations. *It is not true that in 1926 the circulation in France was markedly insufficient.* As was seen above, it was about five times as great as the pre-war figure. If a calculation is made on the basis of price indices alone, one finds that in terms of

gold, the cost of living stood at 84, wholesale prices at 130, and wages at 110 approximately. Thus a circulation which remained at its pre-war value in terms of gold sufficed within a margin of 10 per cent. If now the expansion of industrial production is allowed for, and supposing that a 30 to 35 per cent. increase in the circulation was needed in consequence, the necessary increase of the French circulation would be in the region of 20 milliards. But even if these 20 milliards had been accumulated as gold reserves in the vaults of the Bank, these reserves would not have constituted any greater proportion of the total world stock than before the war; far from it.

Mr. Hawtrey's argument would only be really valid if he could show that France was bound to return to the world level. But in fact nothing is more doubtful than this. World prices (and all the statistical data confirm it) were falling at that time, and *if the devalued countries were to come back to an equilibrium with the gold-standard countries, the probability that these would come half-way was not to be overlooked. Moreover, even admitting that this rise in prices would have to take place in the devalued countries, it would not inevitably have had the results foreseen by Mr. Hawtrey. It is almost certain that the war period and the post-war years brought about considerable modifications in the psychological structure of the French market, as regards both the employment of the various means of payment and their velocity of circulation.*

Let us examine, to begin with, the circulation of bank credit. Monsieur Jacques Rueff has studied this subject in his well-known book, *Théorie des Phénomènes Monétaires*. He calculated the velocity of circulation, before and after the war, of money deposited on current account in the Sociétés de Crédit. The procedure is as follows: the monthly total is taken of the clearings effected in the clearing-house of the Paris banks. If this total is divided by the number of working days in the month, an average daily turnover is obtained which is comparable from month to month. This average is then divided by the total volume of current accounts and deposits at sight with the four Sociétés de Crédit, and a variable coefficient is thereby obtained which measures from month to month the average velocity of circulation of current accounts and deposits.

One criticism does indeed suggest itself immediately. In spite of their considerable importance, the four large Sociétés de Crédit do not constitute the whole of the banks affiliated to the clearing-house, and it is, therefore, rather deceptive to

divide the total volume of clearings by the deposits of these institutions. However, in an index which does not claim to represent the absolute velocity of circulation, but simply the changes in that velocity, this complication does not affect the result if we are able to assume that the share of the four Sociétés de Crédit in the total of clearings is constant. Now M. Rueff calculated, on the basis of information which he was unable to publish, that this share had remained roughly constant before the war; at that time the clearing-house incorporated eleven banks and the four largest contributed a proportion of cheques never diverging greatly from 67 per cent. After the war, when the clearing-house was reorganised, and the number of affiliated banks rose to 46, the part played by the four Sociétés consequently became relatively smaller (cf. *Tableaux de l'Économie Française*, tables 42 and 43). This meant a reduction in the percentage of cheques drawn through these four Sociétés to something in the region of 40 per cent.

Unfortunately, M. Rueff's survey was not carried beyond 1927, and for the subsequent years we are reduced to conjectures. It does appear probable, however, that the part played by the Sociétés de Crédit, if it varied at all, increased. The Institut Scientifique de Recherches Économiques et Sociales has, in fact, calculated the total deposits of the four large Sociétés and twenty-one other banks. From 1926 until the crisis, the total of current accounts with the credit institutions rose by about 50 per cent. (33 milliards maximum in 1931 as against $22\frac{1}{2}$ milliards in 1926); on the other hand, the corresponding figure for the twenty-one other banks only increased by 40 per cent. There is therefore every reason to suppose that the percentage of cheques cleared through the four Sociétés de Crédit increased slightly. The writer has continued for the period after 1926 the calculations made by M. Rueff between 1920 and 1925, and estimates that the results are comparable from beginning to end of the whole period, though the approximation is not of the closest. But these results are definitely not comparable with the pre-war period. A crude method of overcoming this discrepancy consists in multiplying the pre-war coefficient by 0.7 and the post-war coefficient by 0.4. For since the clearings effected through the four large Sociétés de Crédit represented before the war 70 per cent. of total clearings, but only 40 per cent. after the war, it is possible by this method to eliminate more or less the share of the other banks in the total. On the basis of these figures an index has

been constructed of the velocity of circulation of bank credits (1913-100).

It can be seen from this index that except for the years of inflation, which are in this respect quite abnormal, the velocity of circulation continued to increase at practically the same rate as before the war; in periods of prosperity it was greater, while in periods of depression it fell below what one could term the normal trend. At all events, the present velocity is almost twice as great as before the war and never once, even during 1932, returned to the 1913 level: the lowest point which it reached after the war was in the third quarter of 1932, when it stood at about 120.

Now the total volume of clearings certainly constitutes a very reliable index of the volume of payments by cheque. If it is true that the velocity of circulation of the deposits of the Sociétés de Crédit increased, it is also very probable that this also happened with the other banks. Furthermore, since the total volume of deposits increased from $7\frac{1}{2}$ milliards in 1913 to 40 milliards in 1926 (that is, more than five-fold), it seems possible to conclude that *the proportion of payments effected by cheque in the French economic system has increased. Therefore, the volume of payments effected by fiduciary money must have been proportionally reduced. Hence even supposing that the velocity of circulation of this latter kind of money has not changed, it is still true that the need for banknotes must have decreased relatively since the pre-war period. A fiduciary circulation, therefore, which is five times as great, must correspond to an internal price-level more than five times as great as before the war, that is, to a gold price-level higher than in 1913.*

Moreover, one is also entitled to suppose that the velocity of circulation of coin and banknotes has increased to roughly the same extent as the velocity of circulation of bank credit. As was observed by Professor Divisia in an article in the *Barometro Economico Italiano* (October 1934), roughly the same types of payment are effected in both these media, and it is very probable that a change in the attitude of the public tending to increase the circulation of bank credit would be reflected equally in the circulation of banknotes and fiduciary money. There is finally one other factor which strengthens the hypothesis that a relatively lower circulation in 1928 was sufficient for relatively greater needs: the increase in the use of postal cheque accounts. Before the war, this institution did not exist at all, and even in 1918 the total volume of postal cheque deposits

was no greater than 188 million francs; on December 31st, 1926, it reached the figure of 1,125 millions, on December 31st, 1927, 1,328 millions, and continued to increase up to 1932. Parallel with the growth in the volume of these deposits, the rapidity with which they were drawn upon also increased. It was not long before the daily turnover amounted to as much as a quarter of the total. To a certain extent, postal cheques duplicate ordinary bank cheques, and have helped to introduce the use of the cheque in districts where before the war payments were made in cash. It is, therefore, evident that the growth of this institution contributed still further to diminish the need for cash.

There is one case, however, which ought not to remain unmentioned, where the velocity of circulation appears to have remained constantly below its pre-war level, apart from the abnormal period of inflation. If the transfers in the books of the Bank of France are compared with the volume of its current accounts and private deposits in exactly the same way as the total volume of clearings was compared with the deposits of the Sociétés de Crédit, an extremely high velocity of circulation emerges in 1924, 1925 and 1926 which was almost twice as great as before the war; but in 1927 this velocity fell to roughly the half of its 1913 level, and subsequently in 1929, when it again reached a maximum, it was still only eight-tenths of the velocity in 1913. In this particular case, however, separate examination has to be made of the two items of which the velocity ratio is composed. The total volume of bank transfers (per working day) increased quite considerably from 500 millions to 4 milliards in 1926 (an increase of 60 per cent. in terms of gold) and subsequently only fell moderately, always remaining above 3 milliards. The level is, therefore, consistently higher than before the war.

This increase in bank transfers is easily overlooked on account of the even greater growth in current accounts after *de facto* stabilisation. The latter reached the figure of 9 milliards in 1927, whereas before the war they had not exceeded 650 millions. A reduction in the velocity of circulation, therefore, cannot in this case be due to a diminution in the volume of payments, but to an increase in the means of payment. How is this latter to be accounted for? By a decrease in economic activity and reduction in the need for money. The notes which the Bank of France issued against the bills which it bought found their way back through two different channels; chiefly

through the Treasury accounts and the *Caisse autonome*, but also through private accounts and deposits. Far from reflecting a diminution in the volume of bank payments, which would have involved an increase in monetary payments and a proportional rise in the circulation of banknotes, the reduction in the velocity of circulation of credit at the Bank of France is itself the direct effect of an excessive circulation seeking to be absorbed.

For the moment, however, this question will be set aside for further consideration when the real course of events is unravelled and after all the relevant facts have been stripped of the disguise in which Mr. Hawtrey has clothed them. It should be pointed out that even if this argument were deemed insufficient as far as the transfers in the Bank of France are concerned, these transfers represent a very special form of payment; they derive very largely from Stock Exchange transactions, and are, therefore, to be regarded rather as an index of Stock Exchange speculation than as a measure of economic activity in the proper sense.

Thus, when Mr. Hawtrey concludes that the fiduciary circulation ought to be increased to a considerable extent (does he not say that 80 milliards would appear to be a suitable total?) he deliberately neglects two important facts. *In the first place he has no right to argue on the basis of the world price-level, since this level is itself falling. In the second place he has no grounds for asserting that, other things being equal, the fiduciary circulation needs to increase in proportion to the volume of payments to be effected; for it is clear that other things are not equal.*

Doubtless it is true that the two terms of the equation (or more accurately of the exchange identity) should vary equally and in the same direction; but the total of payments is itself the product of a certain quantity of money, cash or credit, and a certain velocity of circulation. If the latter increases sufficiently to compensate the increase in the first term of the equation, there is no necessity for the quantity of money to increase correspondingly. Now it has been argued above, and there can be little doubt about it, that the velocity of circulation has practically doubled since before the war. The same quantity of money, therefore, should suffice to effect roughly double the number of transactions, that is to say that if industrial production stood at 30 per cent. above the 1913 level, the level of prices in terms of gold could stand at one and a half times their pre-war level, without an unchanged circulation in terms of gold becoming insufficient.

To show how arbitrary is Mr. Hawtrey's reasoning, it is sufficient to compare the French monetary circulation with that, for instance, in Great Britain. In 1913 the volume of banknotes and gold in circulation amounted to about 11 milliards; in Great Britain about 150 million pounds sterling were in circulation, equivalent at the pre-war parity to less than 4 milliard francs. Now no one would deny that the volume of payments effected in Great Britain greatly exceeded the volume effected in France, yet a circulation only a third as great sufficed to carry them through. It will be replied, of course, that this difference was due to the different habits of the two peoples and the situation of the two markets. This is true, indeed, but is it so certain that the French market remained unchanged between 1913 and 1928? A period of fifteen years is a lapse of time during which many habits may change, particularly when it opens with four years of war followed by eight years of inflation. During this inflation, money was in incessant motion and the habit of spending it faster was probably never afterwards given up. Indeed, this is exactly what emerges when, calculating the velocity of circulation of bank credit, it is found that quite apart from crises, it has practically doubled since the war.

It appears, then, that if Mr. Hawtrey's statistical estimates are accepted, but allowance is made for the velocity of circulation, conclusions very different from his are obtained. The total quantity of payments is equal to the product of the quantities exchanged and the prices at which they are effected. Economists are, in general, agreed that a reliable index of the quantities exchanged is to be found in the number of loaded railway trucks. It is possible to construct this index, although the number of loaded trucks for the year 1913 has not been estimated exactly. The *Statistique générale de la France*, however, conjectures that it must have been in the region of 48,000. As this estimate refers to the present territorial area, it needs to be corrected for Alsace-Lorraine. Since the number of loaded trucks on the lines serving these provinces constitutes one-sixth of the total, and since this proportion has remained roughly constant, the corrected estimate for 1913 lies in the region of 40,000. It is now a simple matter to calculate an *index of the quantities exchanged*.

It only remains to construct a good *index of prices*. In this respect, unfortunately, the data are far from satisfactory. All that can be said is that the index, however chosen, must lie

somewhere between the index of the highest and that of the lowest prices. To this end, three price series were drawn up, the national wholesale price index, the cost of living, and the index of wages; and for each year *the highest and the lowest of the three were chosen*. Multiplying each of these successively with the index of the quantities exchanged, *two separate indexes are obtained for the total value of exchanges, on a base of 100 in 1913*.

Now if no change had occurred since before the war, a monetary circulation of something between 80 and 100 milliards would be necessary, as Mr. Hawtrey supposes. But if we are to allow for the *change in the velocity of circulation*, we must divide the index for the total value of exchange by the index for the present velocity of circulation (base 1913-100) and then multiply by 100. Quite a different series is thus obtained, and one which approximates very closely to the actual monetary circulation as it appears in the balance-sheet of the Bank of France; for in 1927 the maximum and minimum indexes are 53 milliards and 44 milliards respectively, while the actual monetary circulation was 56 milliards.

It is, of course, very probable that our own calculation is itself also erroneous, for it yields a maximum limit for the circulation which lies consistently beneath that which actually existed. Two explanations can be found for this. Firstly, the velocity of circulation of cash and notes may not have risen so much as that of bank credit; and secondly, a further factor has been completely overlooked which it is quite impossible to take accurate account of, namely hoarding. Hoarded notes have no effect whatsoever on the volume of payments; they form part of the circulation entered in the banks' balance-sheets, but leave no trace on the actual economic process.

It has been estimated by authorities with expert knowledge that from 1928 onwards the total volume of hoarded notes was about equal to half the total value of 500-franc notes and 1,000-franc notes in circulation. As the total of these two denominations of notes makes up 54 per cent. of the whole circulation, one can probably say that the proportion of large-denomination notes necessary to effect all payments is something in the region of a quarter of the total note issue. If now the composition of Bank of France notes from 1928 onwards is examined, it appears that the proportion of notes of large denomination has continued to increase. The conclusion seems to be that the

surplus has been hoarded. On the basis of calculations made in this manner, the hoarding of notes is found to have increased slowly in 1929, at a much greater rate in 1930 and 1931, and to have remained practically stationary since then, with a further tendency to rise in 1934. Be it observed that this movement is by no means unpalatable, for the year 1930 marks the commencement of France's banking difficulties, when a number of secondary banks had to close their doors; it is very probable that the increase in hoarding was due to this fact. 1931 again was a year of acuter crisis, when most of the primary banks appeared at different times to be in danger, and when the large credit societies themselves had to face very considerable withdrawals of deposits. Since then, hoarding has tended to take the form of the purchase of gold, and 1932 was a lucky year for dealers in the precious metal; furthermore, monetary uncertainty contributed to prevent the volume of hoarded notes from increasing greatly.

Deducting the total volume of hoarding, calculated in this manner, from the total circulation of banknotes, an estimate is arrived at of what may be called the *effective monetary circulation*. For 1928 the figure for hoarding at the end of the year was subtracted from the figure for the total circulation at that moment, but for the following years the average of hoarding at the end of the year, and at the end of the previous year, was subtracted from the average circulation for the year. A three-column table was then drawn up. In the first column appear the estimates for the maximum total value of exchanges for each of the years 1928 to 1934 inclusive; and in the third column appear the corresponding minima. In the middle column are tabulated figures for the effective circulation calculated in the manner described above. *Bearing in mind that the three series of calculations are all of them equally arbitrary but that the hypotheses on which each is based bear no relation to one another at all, the agreement in all three cases is truly astonishing.* In three out of seven, the circulation calculated from the figures in the Bank of France's balance-sheet, and the estimates of hoarding, lies between the maximum and minimum calculations for the total value of exchanges. In the four other cases it lies above the maximum (1930-1 and 1933-4). But the divergence never exceeds 12 per cent., which is of an order of magnitude no greater than the very rough approximations of the estimates would admit.

If, therefore, Mr. Hawtrey's argument is incorrect from

the start, there is little need to dwell upon the conclusions which he draws from it. The criticisms here brought against them are already so well known that they will be made very briefly lest they should seem fastidious. If the monetary circulation was, after all, not insufficient, it cannot have been its insufficiency which caused the stabilisation crisis in 1927 and drove France to the deflationist policy which Mr. Hawtrey condemns. *The crisis was not connected with the stabilisation of the franc, but rather with its revaluation*; it arose out of the disturbance in the national and international exchange situation consequent upon a sudden raising of the value of the monetary unit. Even if we leave out of account the July panic in 1926, the pound sterling was quoted in Paris during the first six months of that year at an average rate of 143.50 francs, a rate which was surpassed after the month of April. The stabilisation of the franc at 124 francs at the end of the year thus involved a sudden rise in its external value of more than 13 per cent. Although the market was not accustomed to the extreme rates quoted in July, it surely cannot have been quite unprepared for a rate of 143 francs to the pound.

As for the deflationary policy of which the French Government is accused, this is a complete myth. The rise in the discount rate to $7\frac{1}{2}$ per cent. in 1926 was insufficient to stop the speculation caused by monetary uncertainty, and its maintenance at 5 per cent. until November 1927 certainly caused no inconvenience to the market, since the rate of the open market fell to 2 per cent. in the middle of the same year. Just as much, therefore, as it is untrue that the maintenance of a 5 per cent. discount rate caused the crisis of 1927, so is it equally untrue that a policy of deflation was deliberately embarked upon with the purpose of recouping the Bank of France with the advances it had made to the State, and of purging its assets of everything which its statutes did not permit them to contain. What right have they to speak of deflation in a time when money was overflowing, when current accounts and private deposits rose sharply from $3\frac{1}{2}$ milliards to more than 9 milliards, when the treasury account at the Bank increased in eighteen months from nothing to 8 milliards, and when all the notes issued by the Bank in purchase of bills kept returning to it in some form or another? *Advantage was indeed taken of these movements to repay the Bank's advances, but they were not deliberately engineered in order to make the repayments possible.*

As for the effects which this policy is supposed to have had

on foreign trade, such as the reduction of imports, the increase of exports and the growth of a favourable balance of trade, all this is manifestly untrue. On this question, the writer has contributed a few comments in the *Economic Journal* of September 1934. The 1927 crisis tended to conceal, but only for a few months, the normal course of events, which on the contrary should involve an increase in imports and a reduction in exports; that is to say, it brought with it a short period of readjustment, after which the French trade balance resumed the consistently unfavourable course which it had pursued before the war.

As for Mr. Hawtrey's final accusation, which declares that a final measure of deflation was in the end decided upon—it reveals a totally mistaken view of the circumstances and the aims of the policy it condemns. At the request of the French banks, now greatly encumbered with funds, the French Government had suspended on January 10th, 1928, laws prohibiting the export of capital. But in order to be able to export them without incurring risks, the banks needed to be guaranteed against losses on the exchange. The only method of securing this was for the Bank of France to guarantee the price at which the francs sold could be repurchased; this was the origin of the *long-term loans of bills* which came to be known as "forward operations." Once again it must be insisted that there was no question of deflationary measures, but only of the provisional absorption of money funds which had failed to have an inflationary effect.

One other task still remains before this article is brought to a close, and that is to describe and explain the events of 1927-32, which made it possible for the Bank of France to accumulate first bills and then gold; over the whole of the period they involved (secondary movements apart) an increase of 56 milliard francs in the bank's gold reserve, which rose from 27 milliard francs in 1926 to a maximum of 83 milliards at the end of 1932. Sufficient has been said to show that such effects were not caused by factors internal to France. But for the sake of greater objectivity it seems expedient to examine the trend in the French balance of payments during the course of these years.

An examination of the changes in the balance-sheet of the Bank of France reveals four important periods. Firstly, an increase in its holding of bills up to the date of stabilisation *de jure*; from that date until 1929 an abundant inflow of gold, but against this a decrease in the holding of bills. The third

period, covering the years 1930 and 1931, is marked by a very considerable inflow of gold which now far exceeds the diminution in the holding of bills. In 1932, finally, the inflow of gold almost exactly balanced the sale of bills. Making use of the articles by Monsieur P. Meynial in *La France Économique*, the *Institut Scientifique de Recherches Économiques et Sociales* published in the *Tableaux de l'Économie Française* an historical graph of the French balance of payments. An examination of this graph brings out clearly what actually happened.

Since 1924 visible items of the balance of payment were distinctly in France's favour, and equilibrium was only re-established by extensive export of capital, engendered by the falling of the franc. This is merely an aspect of the well-known phenomenon of a flight from the currency. Mr. Hawtrey is at great pains to deny both the possibility and the effects of this flight. All one can do is to listen respectfully to his argument, but point out to him that this flight did in fact take place. Thus it was that Diogenes, in the face of all sophistry, proved the possibility of movement. What, then, happened in 1927? Confidence in the franc gradually returned. The owners of capital and entrepreneurs in general had no further interest in exporting their money abroad. Indeed, at the end of 1926 the franc was seen to rise progressively and they even began to fear that it would be allowed to rise still more. Now Mr. Hawtrey cannot deny that this fear was justified, since he attempts to convince us that this supplementary rise ought to have been deliberately engineered by the Government. Not only did the clandestine export of capital cease, but people even hastened to bring back the capital that had already been placed there, for fear of making losses or increasing those they had already incurred.

To this was added an inflow of foreign capital. In fact, all the phenomena which follow upon stabilisation began to be experienced. Fixed-interest-bearing assets in France stood at a very low level, for capitalists had to allow for the risk of depreciation. Equities, although less depreciated, stood very far below the 1913 level, farther, in fact, than similar assets stood in other countries. Both types of security began to find foreign purchasers. The proof of this lies in the precautions which certain companies took to prevent the majority of their stock and consequently the majority in the *Assemblée Générale des Actionnaires* from falling into foreign hands. Mr. Hawtrey's reply is that if securities were bought at all,

they must have been sold by someone and that it was the Frenchman who did the selling. But it must be remembered that in 1927 and 1928 the total value of new capital issues rose to more than 40 milliards. There was plenty of room for purchases, both French and foreign.

The balance of payments, therefore, was modified; visible capital movements now appeared on the credit side, and naturally since the other items in the balance are more rigid and change less quickly, this inflow of capital had to be compensated by the creation of francs wherewith to purchase the inflowing securities; for a rise in the external value of the franc was excluded. In 1929 this movement ceased and the prospects of profit in American markets became such that the export of capital was resumed on a small scale.

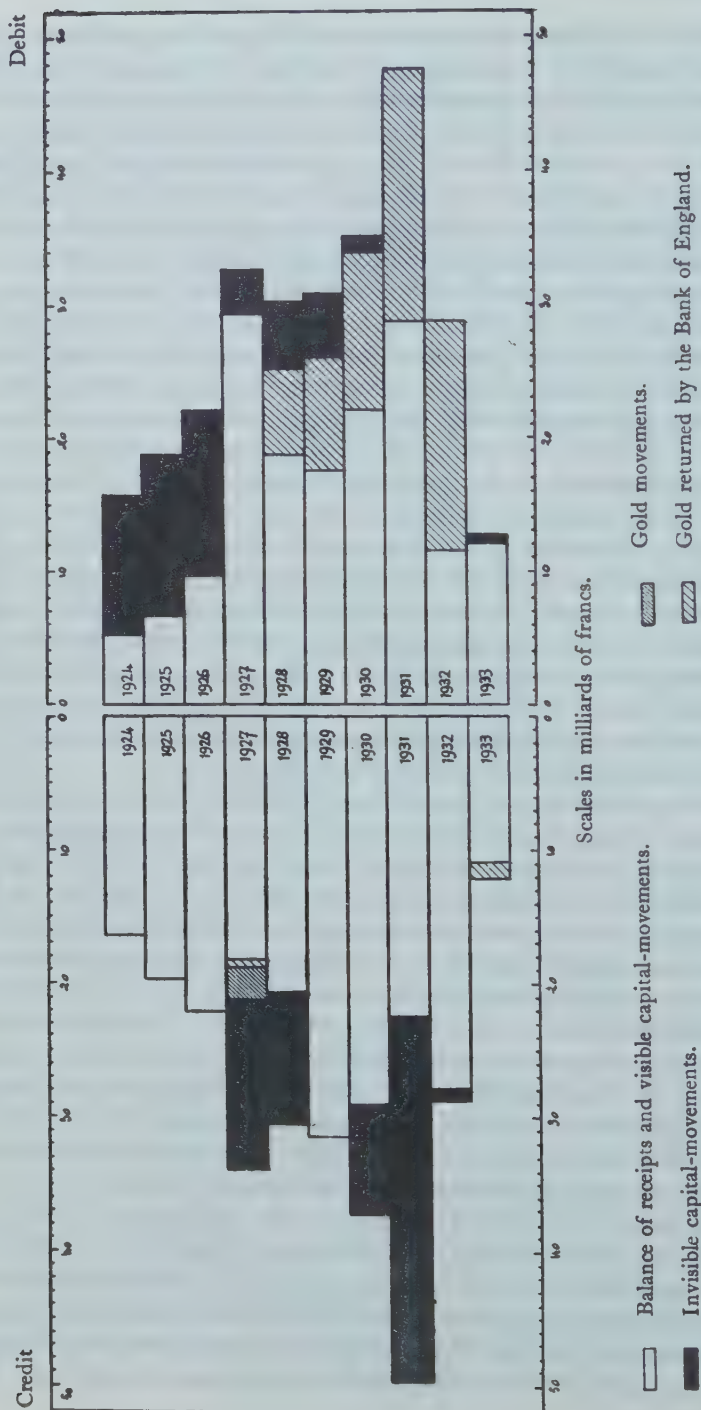
1930 and 1931, however, reveal quite a different story. The crisis burst upon the world. At first, France appeared to be immune. Foreign capital began to take refuge there. In 1931 this movement assumed extraordinary dimensions. Invisible imports of capital appear to have reached 15 to 20 milliard francs. How could the French Government have prevented it? The financial crisis in Central Europe, the banking panic in Germany, fears for the monetary stability of Great Britain (fears justified by events in the course of the same year), economic uncertainty in the United States where the banks were already faced with ruin, all these factors contributed to the precipitate inflow of foreign capital into France. The crisis had not laid such a heavy hand upon her as upon others, her political institutions appeared as stable as those in England, and her financial resources sounder than anywhere else; during prosperous years, the French banks had been reproached for their excessive prudence, but when the crisis came the results of this prudence were taken full advantage of. Capitalists of all countries, so far as they were able, placed their money in France.

Again, what could the French Government do? To continue to create francs indefinitely as counter-payment for the inflowing capital was impossible. The normal operation of the gold standard should tend to restore equilibrium in the balance of payments, through a movement of gold into France, and this, indeed, is what happened. In 1930, 12 milliard francs of gold were imported, and in 1931 18 milliards. Moreover, France derived no advantage whatever from the possession of this gold; it merely served as an excessive backing to her note issue. But what else could be done with it? It could be lent

abroad perhaps, to serve as a basis for credit operations. A few timid steps in this direction were in fact made. But foreign confidence in French stability was such that everything she lent abroad came back to her in the form of invisible capital imports. As for the sale of bills in 1932 which roughly equalled in amount the inflow of gold, they reflect merely the final downfall of the gold exchange standard, a downfall which arose out of the devaluation of sterling and the refusal of Great Britain to return again to gold. Why indeed should France consent to become the victim of foreign monetary experimentation, and why should she deliberately sacrifice some 7 or 8 milliards in holding dollars of which she feared the imminent downfall? Even as it was, the sale of dollars never reduced the American reserves to a very low level. Nothing more was involved than that an already sufficient reserve was increased at the expense of another reserve already excessive; this liquidation of bills had no effect at all on the distribution of gold among other participators in the world supply. France and the United States, indeed, together retained enormous stocks of gold. But far from being the original cause of the crisis these accumulations were its consequence. The sterilisation of gold, if this term is used at all, is an effect rather than a cause, and the word "sterilisation" with the insinuations which it normally carries, is to be condemned for that very reason.

In conclusion, it must be emphasised that the powers of a central bank are not as great as Mr. Hawtrey, despite his great experience, often gives the impression of believing. Monetary policy is not a story from the *Arabian Nights*. *It is not sufficient to demand bills in order to be in a position to buy them, and above all, it is not sufficient merely to demand gold in order to find mountains of it at one's disposal.* If this were not the case the problem of bank reserves would never arise at all. *Doubtless monetary phenomena react upon economic situations, and there is no better proof of this than the trouble which British monetary instability brought upon the world. It is, however, none the less true that fiduciary money or paper money is not the sole or even the primary cause of movements in the economic system, and that the changes which the latter undergoes are, to some extent, the effects of other economic forces.* It was Mr. Hawtrey's misfortune that during this period psychological elements played in France the principal part in shaping her course though he thought that they could be neglected. That is why his argument, neat and tidy though it is, amounts unfortunately to no more than one long sophism.

FRENCH BALANCE OF PAYMENTS



INDEX OF THE VELOCITY OF CIRCULATION OF BANK-CREDITS

1912=100.

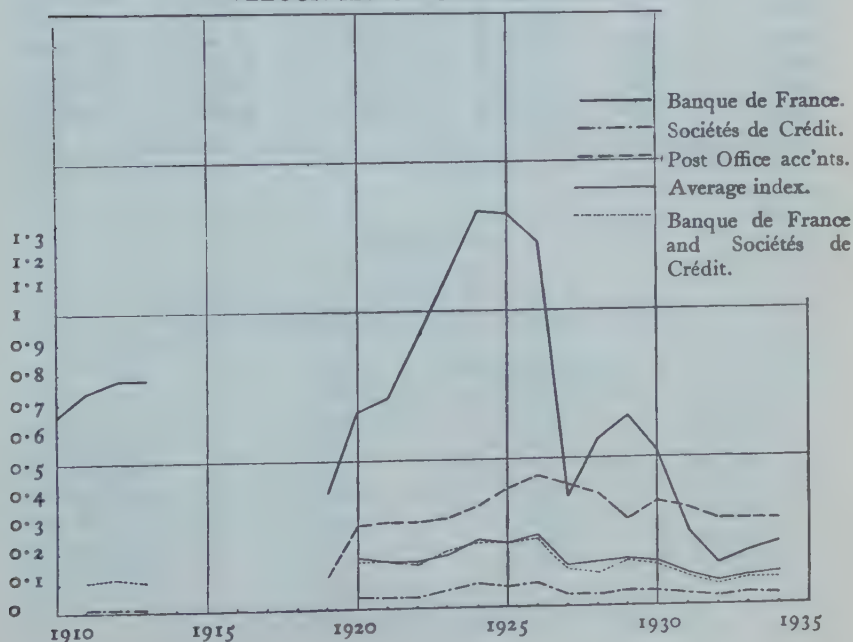
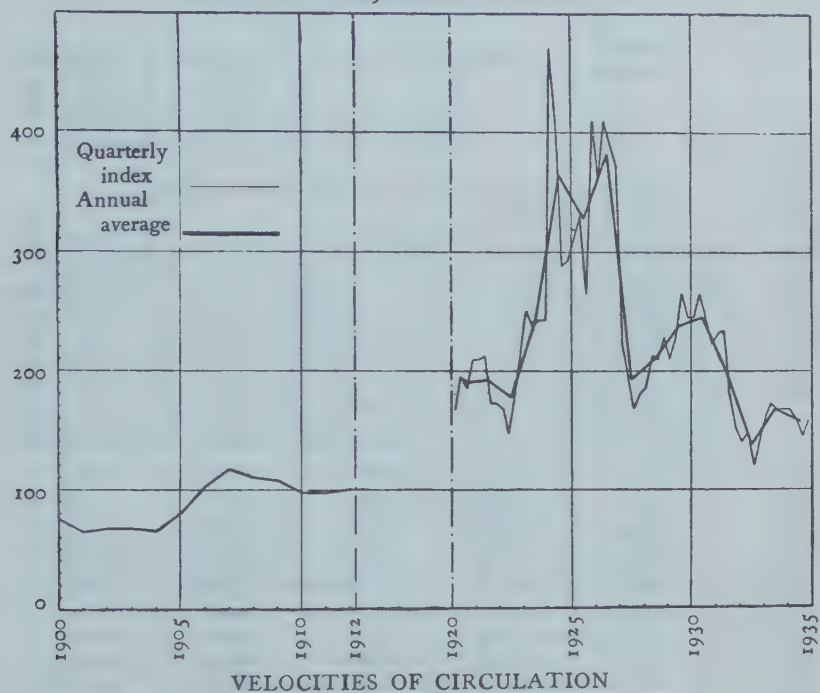


TABLE I
Index of the Velocity of Circulation of Bank Deposits

Year	Annual Averages	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1900	74.8				
1901	65.0				
1902	67.5				
1903	67.5				
1904	64.2				
1905	79.7				
1906	102.4				
1907	117.9				
1908	109.0				
1909	106.0				
1910	97.5				
1911	96.7				
1912	100.0				
1920	189.3	157.2	195.1	185.8	209.1
1921	191.6	209.1	213.7	171.9	171.9
1922	177.7	157.2	148.7	176.5	218.4
1923	242.8	251.0	237.0	241.6	241.6
1924	363.5	459.2	404.0	288.0	292.7
1925	328.7	311.2	330.0	254.8	408.9
1926	383.4	352.3	409.0	390.2	372.1
1927	191.6	223.0	195.1	157.2	181.2
1928	209.0	185.8	213.7	209.0	227.5
1929	236.9	209.0	227.6	264.8	245.2
1930	245.0	245.2	264.8	246.2	223.0
1931	199.9	232.3	233.0	181.2	153.2
1932	138.0	139.4	148.7	119.8	144.0
1933	167.3	152.5	171.9	167.3	157.3
1934	155.8	167.3	158.0	144.0	158.0

TABLE II
Estimates of Note Circulation Required in France

Year	(a) Wagons loaded daily	(1) Maximum index	(2) Minimum index	(a) × (1)	(a) × (2)	(b) Speed of circulation	$\frac{11}{(b)}$	$\frac{11}{(a) \times (1) \times (b)}$	$\frac{11}{(a) \times (2) \times (b)}$
	000					mlrds.		mlrds.	mlrds.
1913	40.0	100	100	40.0	40.0	1.0	11.0	440	11.0
1924	60.5	615	513	372.1	310.4	1.92	5.73	2,132	54.4
1928	63.2	617	519	389.9	328.0	2.09	5.26	2,051	51.3
1929	65.1	635	556	413.4	368.5	2.37	4.64	1,918	47.9
1930	65.4	671	530	438.8	346.6	2.45	4.49	1,970	49.2
1931	53.9	663	527	357.4	284.1	1.97	5.58	1,994	49.9
1932	47.3	625	468	295.6	221.4	1.38	7.97	2,356	58.9
1933	45.2	625	434	282.5	196.2	1.67	6.59	1,862	46.5
1934	42.5	625	407	265.6	173.0	1.57	7.01	1,862	46.5

TABLE III
Comparison of the Effective and the Required Circulation

Year	Notes in circulation ¹	Hoarded Notes	Effective circulation	Necessary circulation (min. index)	Effective circulation	Necessary circulation (max. index)
1928	...	61,000	15,000	45,000	44	51
1929	...	66,000	19,000	47,000	43	48
1930	...	72,000	23,000	49,000	44	49
1931	...	81,000	29,000	52,000	40	50
1932	...	82,000	32,000	50,000	44	59
1933	...	85,000	32,000	53,000	33	47
1934	...	85,000	32,500	52,500	31	47
				5		7

¹ Including silver.

TABLE IV
Bank of France—Holdings of Gold and Foreign Exchange

Year	Gold	Foreign Exchange	Total
July 1926	27,300 ¹	3,500	30,800
June 25th, 1928	28,950	26,500	55,450
Dec. 21st, 1928	31,850	32,800	64,550
June 21st, 1929	36,600	25,650	62,250
Aug. 28th, 1931	58,650	25,800	84,450
Dec. 30th, 1931	68,850	20,200	89,050
Dec. 23rd, 1932	83,100	4,450	87,550

¹ Recalculated in 1928 francs.

The Nature of Aggressive Selling

By W. H. HUTT

IT is a common implication of contemporary economic discussions in the Press, and in the speeches of chairmen of companies and politicians, that the modern economic system tends naturally to generate a sort of competitive tornado, to liberate certain ruthlessly ruinous forces which must be controlled or resisted lest we all perish economically. Such beliefs are not easy to criticise, for they are usually imported as assumptions which are supposed to be obvious to all. Most difficult to answer are those writers who appear not to condemn the whole principle of competition but to argue that some amount of it only is good. In addition we often find the same people arguing that it is bad at one time because we never get it in its "perfect" form, and at another because in its complete form it would be ruinous. But inconsistent contentions in an argument do not prove that one of them cannot be true, and the demonstration of inconsistency does not convince. We are seldom given, however, anything resembling general principles to tell us just *what sorts* of competition are good or bad or just *how much* of it is good or bad. Popular assumptions on the point really present no argument to attack. But some writers of standing seem to have wavered. We do not propose to show in this article how apparent misconceptions among reputable economists seem to have arisen. The present writer has dealt with certain confused notions concerning the conception of competition in recent articles in the *South African Journal of Economics*.¹ To some extent the present discussion builds on those, and the ensuing argument may, perhaps, be more clearly understood if read in conjunction with them. In those articles, values under "natural scarcity" are distinguished from values under "contrived scarcity"; contrived scarcities are shown to exist whenever any hindrance is placed in the way of the completely free disposal and utilisation of all natural

¹ "Economic Method and the Concept of Competition," *South African Journal of Economics*, March 1934; "Co-ordination and the Size of Firm," December 1934.

resources according to the dictates of "consumers' sovereignty"; natural scarcity being regarded as a reflection of consumers' sovereignty and the latter being regarded as a more realistic criterion of social economy than the traditional notion of utility. The institutions which are effective in bringing about values under natural scarcity are called "competitive institutions." The notion of equilibrium under such institutions is shown, in the article mentioned, to involve difficulties, owing to no value attaching to various desirable services such as inventing and certain kinds of risk-bearing. In the present essay we propose to ignore these difficulties. The confusions concerning the essentially ruinous nature of competition do not arise out of them.

There *is* a sense in which competition may be regarded as ruinous. Given the survival of aristocratic or "leisure" class traditions in society, and the monopolistic and authoritarian character of modern communities, any sudden increase in the effectiveness of competition might have a disastrous effect. It is an irrational world that we are studying, and we must face the facts that perfect competitive institutions are unattainable, and that their fanatical acceptance as the goal of practicable reform in the short run is likely to be disastrous. The existing distributive system depends upon the diversion of productive effort through deliberate and customary restrictions in a hundred different forms. Not only is the division of the value of the flow of productivity between social classes fundamentally influenced thereby, but between various groups within the same income-level strata similar tendencies assert themselves. The stark equalitarianism and impartiality of competitive institutions, their callous disregard for private interests, would conflict radically with the present social order. They would bring dismay and desperation to those whose income-rights were violently reduced. As the present writer has argued in another article, "the psychology of modern communities has become adapted to a situation in which restraint of competition is the normal thing. Social habits, ideals, beliefs, aspirations, and sometimes morals, are adjusted to its existence. Human nature as we know it has been reared and fashioned in a system in which privately contrived restriction and coercive intervention by the State in the determination of values are operative on all sides. Even our leaders in commerce and industry and government are profoundly influenced by this economic tradition. They would be bewildered by far-reaching changes

in the economic framework within which they are accustomed to work. To attempt to arrange things so that competition suddenly has a much more unrestricted sway might be disastrous to many conspicuous classes, and the repercussions from their losses might be felt over the whole economic field. A perfect competitive system can still be accepted as a democratic and equalitarian ideal, but there are circumstances in which it ought to be subordinated to gradualness in any policy which has the effect of dissolving protected income rights."¹ In studies such as the present we must ignore the difficulties of readjustment and detriment to human happiness which revolutionary redistribution would involve.

But among other problems we still have the question to answer: Is it true, as Proudhon alleged, that "competition kills competition"? Can it be employed aggressively (either through price-cutting or some other expression) so as to bring about monopoly? If so, what laws or institutions will frustrate those who endeavour so to employ it? Adam Smith recognised the power of "a combination of strong men to eradicate weak ones by low or unremunerative prices, and having secured a monopoly to commence a legal pillage of the public." In conformity with his faith in the disintegrating force of self-interest, he thought, however, that monopoly would, "sooner or later" disappear. Other writers in these days hold diametrically different convictions. Robert Liefmann has told us, for instance, that "competition pushed to the extreme becomes monopoly. The climax of competition is monopoly, and all competition is but a striving for monopoly."² This view seems to rest (a) upon the naïve assumption of unlimited and progressive economies as the scale of operations expands, or (b) upon a failure to grasp the significance of what it is best to call "aggressive selling," the use of a price policy as a coercive device. We shall here be concerned only with the latter.³

In practice, the use of this sort of aggressive power appears most obvious when it is employed by large amalgamations or under deliberate collusion within a ring or cartel (as in the employment secretly of subsidised "fighting ships" by shipping conferences). But it may also exist even when open

¹ "Logical Issues in the Study of Industrial Legislation," *South African Journal of Economics*, March 1935, pp. 30-1.

² *Quarterly Journal of Economics*, February 1915.

³ The power to buy or sell or otherwise compete aggressively may, of course, constitute the principal private advantage of large-scale operation in many cases, in that it enables the large concerns to preserve the power to buy and sell monopolistically.

collusion or amalgamation between competitors is forbidden. We propose, therefore, to consider its nature in circumstances in which there is no collusion or amalgamation. We shall take the simplest cases and consider under varying assumptions the position (1), under what has been called "duopoly" (that is, competition expressed between the owners of two sets of resources, either of whom, alone, would have had complete monopoly); and (2), under what Professor Chamberlin has called "oligopoly" (the situation which exists where there are a few producers only). We shall consider duopoly and oligopoly in the cases of ownership (*a*), of naturally supplied commodities which, in the absence of restriction, would be so plentiful as to have an infinitesimally small or no exchange value; (*b*), of naturally supplied commodities which have value through the natural supply being limited and incapable of expansion by human agency; and (*c*), of commodities supplied through the use of productive equipment and effort.

The classic example of duopoly is one used by Cournot which involves the relations between the owners of two mineral-water springs. It is convenient for us to make use of a similar illustration but to express the problem somewhat differently. Let us consider an isolated community served by a few *ordinary* drinking-water springs,¹ competing sources of water supply for drinking, e.g. rain or deep wells, being costly. Consider each one of these springs to be owned by one person, and no person to own more than one spring. Let us assume (i), that each spring is capable of supplying such quantities of water that, in the absence of restriction of the amount sold, its value will be nil, even if it is the only source of supply; (ii), that each owner incurs no expenses in preparing the water for sale: in other words, that he has no costs of production; (iii), that the water is provided by Nature at an absolutely regular rate; (iv), that it cannot be accumulated except for a few days (or we may assume as an alternative that its qualities are perishable); (v), that the demand schedule for drinking water as a whole is determinate and has some elasticity; (vi), that consumers have immediate and full knowledge of prices asked; (vii), that they are indifferent as to what source to

¹ It is useful to take *ordinary* water springs for the first stage of the discussion, because we are most of us used to considering ordinary drinking water as having an infinitesimally small exchange value. Cournot's example, in referring specifically to *mineral* water, reflects the fallacy that utility is independent of quantity. As, under competition, the mineral water would have had no value in his example, Cournot's argument would have been equally applicable to ordinary water.

patronise, so that in the event of their awareness of any divergence in price they will immediately transfer their demand to the cheaper source; (viii), that each duopolist or oligopolist is aware of what the others are doing; (ix), that each of the owners wishes to maximise his receipts; (x), that there is no collusion between them and no control of one by the others, and (xi), that price discrimination on the part of any single owner is forbidden.

By making these assumptions, especially by considering *all* receipts to be derived from restriction of supply, we are really considering a case capable of alternative illustration. We can imagine instead an unrestricted power of taxation being accorded to a certain body of men in the form of a complete monopoly of a commodity of no natural value, but no stipulation being laid down concerning the division of the proceeds of the tax among them and each of them being allowed to sell unlimited quantities. It is clear that we can say nothing about what distributive scheme is likely to eventuate, and it is also clear that it will be to the advantage of each of them that the price shall conform to that which maximises their receipts. We may expect, therefore, "reasonableness" or tacit collusion among them, if not deliberate collusion embodying their ideas of reasonableness in something like contract form. Indeed, the absence of all collusion is unthinkable. Hence we have in this illustration a plain exposure, firstly, of the indeterminacy of "the quota"; secondly, of the futility and hence unlikelihood of aggressive selling among rational oligopolists in respect of the sharing of purely monopoly revenues; and thirdly, of the determinate nature of the optimum price, irrespective of how many oligopolists there are to share in the proceeds. This approach does not form, however, the most convenient basis of exposition for our present purpose, although it forecasts the nature of subsequent conclusions. In considering separately the position of each spring owner, we may at first appear to be stressing the obvious or unnecessarily repeating what is already plain. But the purpose of seemingly superfluous detail will, it is hoped, become apparent as the essay proceeds.

Let us consider duopoly. The output will tend to approximate to the optimum output for a single monopoly of the sources of supply. For each duopolist will know that if he allows a larger amount on the market or asks a lower price the other will immediately do likewise; and as such competition can clearly benefit neither of them but must, on the contrary,

work to their detriment, they will refrain from it. There will be no object in their practising price-cutting as there will be nothing for either to gain. And if the price should for any reason be below the optimum, it will pay them both to return simultaneously to it. The same conditions will rule under oligopoly. Other things being equal, the number of owners practising tacit collusion will make no difference to the problem. Output will still tend to approach the optimum price for a perfect collusive monopoly. It may be that the more producers there are, the more unrealistic will be some of the assumptions listed in the previous paragraph; but that is the only way in which an increase in the number of springs will affect our argument. Under the unreal conditions of our hypothesis the optimum price for the output as a whole will still be approached.

Let us now consider the implications of our assumption (x), namely, that there is no collusion between the parties and no control of any one by others. Returning to the case of duopoly we see that any increase of price demanded by A would have to be followed by so instantaneous an imitation from B that the collusion might be regarded as virtually deliberate. And if A cuts price B's imitation must be so immediate as to suggest virtual control. Under "oligopoly" this will still be true. A gradual rise of price to which all conform together will be the only conceivable condition for a rise, and a market-wide fall of price the only condition for a fall; and yet the attainment of the optimum price will be likely to be brought about. Hence, it is doubtful whether we can really think of independence attaching to the separate owners in these conditions. For instance, under oligopoly, if A acted irrationally or (relaxing our assumption (ix)) altruistically, by reducing price, B would be forced immediately to follow his price policy. But B might conceivably respond to A's price-cut by forcing the price still lower, perhaps even to nil, in order to coerce A into conforming to a price at or near what he judged was the optimum.¹ B's aggression in that case must be regarded either as in the nature of a demonstration of the folly of competition; or else it must be thought of as preliminary (*a*) to an offer to purchase the other's property in the spring, or (*b*) to deliberate negotiations for formal collusion. From our point of view, a useful way of

¹ Of course, the duopolist practising this aggression will voluntarily suffer losses, but losses which, from the private standpoint, might be regarded as capital expenditure, for they will bring their return later.

regarding this phenomenon is to think of aggression as being actually undertaken only when a threat (of which rational duopolists must be permanently aware) is ignored. It is the continuous consciousness of this threat that makes our hypothesis of independence (assumption (x)) lose much of its meaning. Even in the absence of specific action which might be considered to be a communication or a command from one party to the other, neither individual can be thought of as autonomous. This is clearly equally true under oligopoly and in the actual society that we know. The nature of private income rights (in a society in which there exist "contrived scarcities") are such that the individual who might be prompted (for whatever reasons) to give the community more complete access to the gifts of Nature is faced with personal loss or sometimes even ruin.¹ Hence, under the assumptions here postulated, there is no possibility of initiative being devoted towards the achievement of conditions in which values will reflect natural scarcities, except in the case of quarrels over the division of the spoils. And in these latter circumstances, the benefit to consumers is, as we shall see, likely to be temporary only. Certain other circumstances, certain "external factors" not so far considered, must bear on the situation in order that forces leading to the realisation of the consumers' sovereignty ideal may be released.

When we consider the division of the market between the various owners of the water supply, we are again reminded of the unreality of our assumptions. Under duopoly, as A and B are by our hypothesis equally advantageously situated, there is no reason why, under the influence of chance, they should not halve the custom. Indeed, we must assume the equal sharing of the market, for if consumers are truly indifferent as to what sources of supply to patronise, that will clearly be the result.² But let us relax for a moment our assumption (vii) as

¹ This applies whether these contrived scarcities are based on the advantages of site and size (as under "natural monopoly"), conscious collusion, or the tacit collusion which we are now considering. In the case of a benevolent "natural monopolist," whose plant (or other resources) enjoys the advantages of site and size, there is no question of a threat, of course, to deter him from price-cutting. But for values determined by natural scarcities to rule for his product he would have to sacrifice income-rights for which he may have bid at a previous stage.

² As a matter of fact, to say that consumers are indifferent is the same thing as saying that the most probable division of custom between the two sources will be equal. The idea is highly notional, being based, for instance, on a complete abstraction of the factor of situation (or distance). But we can imagine the two springs happening to be situated close together.

to consumers' indifference. There may be a very slight measure of habit or inertia among them which, in the absence of differential prices, will keep the majority "loyal" to one supplier. There may be a sort of "goodwill" of an admittedly most flimsy nature. In these circumstances if, as a matter of history, one party A has supplied water to one quarter, and the other B to three-quarters of the consumers, this situation may come to be regarded as "reasonable" (especially if the income-rights attaching to the two springs have been bid for and capitalised according to market interest rates). Where existing relations are believed to be "reasonable" they will not be likely to be upset under duopoly. They will form a sort of dominant initial state from which future relations will be ordered. Thus, let us suppose A and B to sell out on the basis of their present sales and the result to be that ten persons acquire A's property (supplying one quarter of the consumers), and thirty persons B's property (supplying three-quarters of the consumers), the shares of each person being of the same value. In these circumstances, such a division of the proceeds will probably be accepted as obviously "fair." We are likely to find, therefore, the practice of tacit collusion or "reasonableness," and the effect of this will be to preserve the income-rights of each of them. On the other hand, where A is the sole owner of one spring and B the sole owner of the other, A may suddenly come to the conclusion that the position is "unfair" and set about price-cutting in order to break down the slight element of consumers' inertia, and in the hope that it will later be to B's interest to allow "reasonableness" once more to rule their relations. For we must conceive of him reckoning on the new distribution of custom, when tacit collusion is again being practised, being determined by chance. Patronage will be likely to be divided on an equal basis; and the benefits derived from the price war by the consumer will have been temporary only. There will, of course, always be much indeterminacy in the division of the gains from restriction whether due to tacit or deliberate collusion. Indeed, it is difficult to expect anything else under the principle of "live and let live." That principle rests on a kind of altruism akin to "honour among thieves." We see, however, that tacit monopoly in all its forms tends to preserve the *status quo*, no matter how unstable or precarious it may be from other causes, simply because the *status quo* is likely to be accepted as essentially reasonable and just. We find exactly the same tendency under formal

collusive monopoly, where the allocation of quotas always tends to preserve the *status quo*, however arbitrary it may be.

The omission of assumptions (vi) and (vii), namely, that all consumers have full knowledge and, being indifferent, immediately transfer their demand when they can profit from price discrepancy, does not alter the situation fundamentally. For the greater the consumers' inertia, the smaller the immediate gain or the greater the immediate loss to the price-cutter, and the smaller the immediate loss to the owner who refrains from cutting. Hence, whilst considerable inertia decreases the probability of retaliation, it reduces the profitability of an initial price-cut. In the case of duopoly, A will not be obliged to follow *immediately* a price-cut initiated by B, for he may at first lose only a small margin of his customers, and may hope that B will soon "come to his senses." But ultimately the same motives will influence him as would determine his actions under perfect mobility among customers. Indeed, the existence of consumers' inertia may necessitate his cutting below the price at which B has been selling in order to get back his original proportion of the market. A's retaliation can be regarded as an attempt to recapture "goodwill." But the inevitableness of A's reaction will almost certainly deter an initial price-cut by B. If, for any reason, a price below the long-run optimum for the two owners exists at any time, the possibility of either of them initiating independently an *increase* of price is rendered more likely; for if A should advance his charges slightly, he might, in the short run, lose insufficient orders to cause a serious diminution in his aggregate receipts, and he might possibly even reap a short-run gain from that policy. On the other hand, B might achieve a greater profit temporarily by not responding to A's tacit suggestion through example that prices should be raised; but he will realise clearly enough his long-run interest in the higher price; and their joint motive for silent co-operation in working towards the optimum price will be at least as strong as under conditions of perfect mobility among customers. It is possible that B will not follow because he thinks that the optimum price for the whole output is being exceeded. He will, however, have much to gain and little to lose in that event from the practice of trial and error; and although price and output will be dictated by the more pessimistic party there will still be this definite tendency towards an equilibrium near the private optimum.

Our assumption (viii), that each party knows what the others are doing, cannot be omitted in the presence of assumptions (vi) and (vii) that consumers have perfect knowledge and are perfectly mobile. For as any price-cut by A will mean that B loses *all* his customers until he responds, he can hardly be unaware of A's action. We can, however, eliminate assumptions (vi), (vii) and (viii) together. Let us consider, then, the case in which all owners are not immediately aware of what the others are doing and in which consumers lack complete knowledge of the market, and are therefore unable to transfer their demand immediately to meet price discrepancies. Under duopoly, should A become aware of demand falling off, he may assume that aggregate demand is falling and not notice that *some* of his customers are being attracted to the patronage of B who is deliberately charging a slightly lower price. He may nevertheless cut prices slightly to meet the decline in demand, and eventually get back a measure of custom nearer the original proportion of the (presumably larger) quantity demanded. B (whose cut may not necessarily be due to a wrongly estimated change in demand) may be afraid to go farther for fear of a price war. A sort of arbitrary equilibrium may be established in this way. B will then have achieved the whole of his special return; and for the future the two of them will be permanently worse off at that equilibrium unless the former price had exceeded the optimum. Thus, B's motive to cut with a view to increasing his share of the trade will not be very strong unless he can rely upon his temporary differential prosperity enabling him to dispose of the whole or part of his property at an inflated price. There will be but meagre chances of private gains from a price war in quest of a larger quota. Moreover, the price having once been brought down, it will still pay far-sighted duopolists to follow each other's lead in attempting to re-attain their optimum price, which is the tendency, as we have seen, both in the presence and absence of the inertia which now forms part of our assumptions. In this case B's temporary power to cut prices profitably in the first place depends not only upon the existence of considerable mobility among some of A's customers, but also upon that mobility not being so large as to cause A to become aware of the *transfer* of custom (as opposed to the apparent decline in demand). On the other hand, when consumers' inertia is strong, when, over the short run, the degree of mobility among A's customers is small, there may be no motive for B

to cut at all, for inelasticity of demand in the short run will have brought sacrifices, and by the time that sufficient custom has been attracted to him to compensate for the lower price per unit sold, A will be likely to have realised the situation and to have retaliated. Where consumers' inertia is strong and where, for any reason (such as a fight for quotas), the price is below the long-run optimum for both of them, an independent *increase* in price, as we have already seen, is likely. A, relying on the inertia of a large number of his customers, might raise his price and lose insufficient orders to cause a diminution in his aggregate receipts and, in fact, possibly experience a greater aggregate return. Then B, finding a slight increase in the demand for his supplies, will also be likely to consider raising his price even if he has not noticed that A's policy has driven certain customers to him. Under duopoly in these circumstances, then, the tendency for price to approach again the private optimum will still be present.

Where numbers are greater, i.e. under oligopoly, there are no grounds for modifying this conclusion. Let us consider the case in which mobility among certain customers of each owner is great enough to bring short-run gains to price-cutters but not large enough to stimulate an immediate price response on the part of other suppliers. A single individual, for instance, may count on cutting price in the hope of greatly increasing the amount supplied by him—perhaps doubling or even trebling it—without exercising sufficient influence on the market as a whole for the other owners to become aware of a noticeable falling off in their own sales for a considerable time; or if several individuals pursue the same policy of allowing more on the market, and a general falling off in price is the *ultimate reaction*, this might still not be felt to be serious or its cause recognised by those individuals who allow only their customary supply to be placed on the market. When the price has fallen, the fact of inertia may have brought about a redistribution of demand among the different owners. This redistribution may be of various degrees of permanence. If inertia is fairly small, the proportions of total output left to each owner may soon be the same as they were at the outset. In that case, the original price-cutters will soon have reaped to the full their private gains; and to obtain a further differential return it will be necessary for them to start price-cutting once more. Where there is considerable inertia among consumers, however, the factor of numbers makes the position

somewhat different from what it is under duopoly. Although it may take much time and entail short-run sacrifices for one owner to attract customers, the other sellers are likely to be even more slow in realising what he is doing.¹ Through the delay in their retaliation, he may be allowed to retain permanently any increased proportion of the total market so secured. For when the others *do* notice his successful manœuvres, they may think it worth while tolerating his gains and treating bygones as bygones, in order that prices shall at any rate be maintained for the future by a "reasonable" attitude among sellers.² They may feel the folly of aggression or punitive competition. If they do not, and seek to win back stolen goodwill, the consumers are likely to experience the temporary benefits of a price war. Forbearance in the future will, however, tend to preserve an existing distribution of "goodwill," accepted as "reasonable," which different owners may have acquired in the past. As we have seen, the tacit monopoly relationship between sellers works to protect the *status quo*. Thus, under the conditions postulated, whilst economic inertia enables the employment of skilful tactics which may add to the custom and hence the wealth of individual owners, it does not destroy the profitableness and inevitableness of tacit collusion. And where those with control of the sources of supply are completely rational, the existence of this inertia does not weaken the tendency for maximum receipts to be obtained by them. The continuous impending threat to price-cutters will still remain, and although some owners may dare to show defiance, and in so doing actually benefit themselves by capturing "goodwill," the threat will, in general, it seems, be effective.

So far we have been considering the case of tacit monopolisation of commodities with no (or infinitesimal) natural scarcity. We must now consider the supply of commodities which *are* naturally scarce. In the following discussion our assumption (i) is, then, omitted and assumptions (ii) to (xi) restored. The burden on our imagination is least, in view of our assumption of *natural* scarcity, if we now choose the example of mineral-water springs of rare medicinal qualities rather than ordinary

¹ This appears to constitute the sole significance of the distinction between monopoly and duopoly on the one hand, and oligopoly (with any number of competitors, provided that no interlopers can intervene) on the other hand.

² Here also we have an enlightening parallel with the case of collusive monopoly under actual conditions. Many a small producer who has exceeded his quota is allowed to remain in the cartel, or is allotted a larger proportion of output as a bribe to retain his co-operation.

drinking water. We must imagine these springs giving a limited but absolutely regular supply which is incapable of being added to by means of human effort or expenditure. Let us now add the further assumption, (xii), that exactly the same quantities are provided by each spring. In these circumstances, the value of the mineral water under natural scarcities will be expressed in that price which just enables the whole supply to be taken off the market. To charge a price lower than this will necessitate rationing, or some would-be consumers going short. To charge a higher price will necessitate allowing some part of the supply to run to waste. We may expect the latter actually to take place. It will still be to the interests of owners to contrive scarcities in this way if the elasticity of demand is less than unity in the region of the price determined by natural scarcity; and the motives leading to the attainment of the price which is expected to produce the maximum receipts will still be operative.

Under duopoly, the smallest price-cut by A, assuming B's passivity, will lead to the whole of that part of the demand being transferred to him which is satisfied by the natural supply that he controls. If the initial actual supply is less than half the natural supply A will obtain the whole of the custom but still, on the assumption of a very small cut, not dispose of the whole of the output of his spring. But B's passivity is inconceivable, no matter what the relationship of actual to natural supply. Retaliation or conformance to the lower price will still be the rule. B's power of retaliation will be as great but no greater than in the case of the duopolisation of commodities of no natural value. For even if he sells at below the price determined by natural scarcities, he will not be able to steal any more of A's custom. On the contrary, such a policy on his part will be likely to increase the demand for A's supply, because consumers who will not normally demand will absorb part of B's supply. It follows that others will have to go short, and some of those disappointed can be expected to look elsewhere for the supplies they need and so enhance the value of A's supply. In these conditions (which are, of course, hardly conceivable) price discrepancy will exist together with the rationing of half the supplies and the bidding up of the value of the other half. The implications of this are of the utmost importance. Whilst the continuous impending threat to price-cutters is equally present in the case of goods which are naturally scarce, a general outbreak of price-cutting such as is

commonly called a "price war," will have no tendency (under our assumptions) to cause the ruin of owners of natural resources, or even severe losses to them. Indeed, the "ruinous" competition that is likely to be precipitated either by quarrels about the division of the market or from the external factors which we have yet to discuss may be regarded as the very force which will ensure the most complete availability to the community of Nature's gifts; and it will be the voluntary acquiescence of spring owners when confronted with such competition that will lead to this. The omission of our assumption (xii) that each spring provides the same natural quantity does not alter this conclusion. If A's spring provides only one-tenth and B's nine-tenths of the aggregate natural supply, once A is selling his full output for the highest sum it will fetch, and no part of B's supply has been allowed for some time to run to waste (and under assumption (iv), it cannot be held off the market), B will have no power to force *further* losses on A with a view to compelling him to practise tacit or deliberate collusion. Under oligopoly the same position can be seen to rule.

Let us now drop our assumption (iv) that the commodity cannot be accumulated or has perishable qualities and consider the case of the duopoly in which, instead of allowing the surplus to run to waste as output is restricted, B accumulates a large supply in a reservoir. The existence of an accumulated stock complicates but does not destroy the idea of natural value. The retained supply, being available for consumers if the owners are prepared to release it, must be brought into the reckoning. It is wrong to think of the price necessary to absorb the existing rate of *new* supply only as reflecting value under natural scarcity. We must think of any stocks being continuously added to the existing rate of output at that rate which, given the costs of storage and the rate of interest, will be most profitable to its owners¹ (assuming that they are not hoping to obtain benefits from aggression). The accumulation may be used, however, not in this way, but deliberately placed on the market at a more rapid rate in order to force a low price with retaliatory or punitive intention. It may be used by B, for example, to compel A to abandon his "ruinous competition." But A will know, under our assumptions, that

¹ If we omit assumption (iii) that the water is provided at a regular rate we must imagine fluctuating price, tempered by the deliberate accumulation and depletion of stocks which are released so as to produce, as nearly as possible, the maximum aggregate return.

the supplies that B is putting on the market cannot last for ever, and the attempt at his coercion by that policy is bound to fail. For A will accumulate until B's supplies are exhausted at the unnecessarily low price, and then dispose of his own stock in accordance with an estimate of his long-run interest.¹ The more drastic B's price-cut, the better for A, in the given circumstances, for the sooner will the "surplus" be absorbed. As soon as stocks have been disposed of, further accumulations by B will be possible only by a process which is to A's temporary advantage, and which may be regarded as a source of gain likely to countervail subsequent losses during the off-loading of B's accumulation. Thus, starting from an initial position of competition between owners placing the whole of their regular supplies on the market, and rationally liquidating any accumulation, we see that aggressive selling to force one or more of them into a tacit or deliberate monopoly is bound to fail. The motive to restrict in order to obtain a higher return will still be there, of course, but competition starting from this plane cannot be "ruinous." Under oligopoly, the power to use accumulations in order to ruin individual owners is even less conceivable than with duopoly, for under our assumption (xi) (the absence of discrimination), any price-cut would have to extend over the whole market, and the recalcitrant individual would receive no more damage than the others. The exclusion of assumptions (vi), (vii) and (viii) (consumers' knowledge and indifference, and suppliers' awareness) does not complicate the position to any extent. Under duopoly, B's attempt to capture A's goodwill (with a view to his coercion) by a secretly accumulated surplus will probably cause A, on becoming aware of the nature of these activities, to pursue a similar policy to that which we have seen he would be likely to follow if he possessed perfect knowledge from the start and consumers were completely mobile. We must expect A to follow with price-cuts whilst he is unaware of what B is doing. For we are assuming that he must get rid of the whole of his output and that he is not allowed to discriminate by charging lower prices to those of his customers who are tending to move. In the light of our assumption (xi), (of the proscription of

¹ A's possible inability "to wait" is irrelevant as we have assumed that no expenditure is required to obtain the commodity that he sells. His private commitments are also practically irrelevant. The postponement of his receipts from sales does not entail the cessation of his income, for *his* stocks will be mounting as *B's* stocks are dispersing. A may have to borrow on his stock at current valuations and pay interest; and B might threaten to force this burden on A.

discrimination), therefore, the values which cause marginal consumers to move will still determine price, in spite of consumers' immobility. When A does recognise B's aggressive policy, he may start accumulating the whole or part of his supply; but in view of consumers' immobility (assumptions (vi) and (vii) being omitted) we may assume that through his refusal to cut he will retain a gradually declining proportion of his former customers. B's accumulation having been spent, A will recommence selling and liquidating rationally his own reserves. But B, with his reservoir exhausted, will find that he has failed to capture any goodwill, unless two sets of prices rule in the market. If the price charged by both duopolists is the same at the margin, then, in view of assumption (xi), this margin will determine the price for the whole. There may remain, however, a price interval which marginal consumers at any moment may have failed to cross. But we must imagine them gradually to bridge the gulf; for we attribute some mobility to them when we consider the possibility of goodwill being captured. Thus B will cut continuously to avoid further accumulation of his supply and the price of A's supply will tend to be bid up as the range of potential purchasers expands. The tendency for the two prices to meet will be immensely strong even if there should be a definite personal preference for or prejudice against dealing with one or other of the owners. Hence, given some degree of consumers' immobility, the fact of accumulated stocks does not create conditions which make it possible for competition to become "ruinous" through the "theft" of goodwill. That is, it will not make possible a condition in which, say, half the supply, controlled by A, will sell for less than the other half, controlled by B, to an extent which can be regarded as likely to ruin either party.

So far we have assumed throughout (assumption (xi)) that price discrimination must not take place. But when discrimination is practised, under conditions in which goodwill can be a determining influence (i.e. in which assumptions (vi), (vii) and (viii) are absent), the imposition by certain owners, with or without accumulated stocks, of considerable losses on recalcitrant suppliers is conceivable. For instance, under duopoly, B may attempt to dissuade A from price-cutting by retaliating in those parts of the market only in which A's goodwill is strong. In these circumstances, the relative supplies of the two parties are of importance. If A's spring provides only

one-tenth and B's nine-tenths of the aggregate natural supply, the fact of inertia in the market may enable B to undersell drastically to A's customers alone. That will result in the value per unit of A's supply being less than what the average value per unit of B's supply would be if the whole output were allowed on the market at a uniform price just low enough for its absorption. Such a process can clearly be used with coercive or punitive effect, either with a view to forcing A to follow a particular selling policy (or to force him to sell out), or else for some ulterior purpose, such as private spite. There will, however, be definite limits to the power of aggression in these circumstances. It is not very probable that the price of the supply selling in the area previously satisfied by the owner with the small supply will be for long much below the price determined by the natural scarcity of the whole. Heavy price-cuts in one section of the market are in practice likely to be infectious and gradually to spread their influence over the great bulk of transactions. The power to discriminate is more likely to work as a deterrent force making price-cutting by a small supplier trying to steal goodwill obviously unprofitable to him. A will know, for example, that if he cuts, B will follow by local or particular discrimination to prevent any filching of his customers. B will have little need to act aggressively because of the very strength of the tacit threat in his possession, for in any case A's natural supplies being only one-tenth of the whole, A's *relative* sacrifices are likely to be nine times as great as those of B. Under oligopoly similar conclusions are reached. *We must remember, however, that in all the above discussion we have noticed no reason why there should be a desire to initiate price-cuts.* If we exclude the case of the scramble for quotas, then only misjudgment, or the relaxation of assumption (ix) (that each owner wishes to maximise his receipts), seems likely to cause the breakdown of tacit monopoly under the assumptions that we have made. *The "external conditions" which may precipitate competition have not yet been noticed.*

Our conclusion that in the absence of discrimination aggressive selling cannot be "ruinous" to individuals, in the sense of destroying the value of natural productive resources that are scarce, clearly applies also to the value of productive equipment that happens to exist. No difference of principle arises in considering a natural spring providing a certain quantity of mineral water and a well sunk at a considerable expense which

provides an identical supply.¹ Hence an investor in such a well, intervening in a situation in which the whole present output is being sold, will have nothing to fear from aggression on the part of the owners of the existing natural supply. It follows that desirable investment in immobile equipment will not be deterred. The investor will know, of course, that his own addition to the flow of the product will reduce the price; and it will be the expected *ultimate situation* that will determine his action.

We have now reached the stage at which those "external forces" that have already been referred to as precipitating competition in a field of tacit monopoly are being considered. Let us restore assumption (xi) under which discrimination is forbidden. It is then potential or actual interlopers who ruin the quiet restrictive activities of oligopolists seeking to maximise their receipts.² The willingness of interlopers to invade any such field will obviously depend upon how they expect existing sellers to react. Unlike the vested interests of present suppliers, the desire of the newcomers to share in the fruits of restriction cannot be regarded as a time-honoured fact. The quantity that they attempt to *insert in* (*we avoid the words "add to"*) the aggregate supply will not appear to the others to be "reasonable," so that the likelihood of hostility against them, and a consequent "scramble for quotas" is certainly not small. If their intervention has been so gradual or tactful, however, as to attract no particular notice, we may find that in the interests of the preservation of "reasonable" prices, their profitable disposal of an output at the optimum price will be tolerated provided they show no disposition to expand. We may expect to find this often, in spite of there being no reason

¹ It is convenient to make assumptions concerning such an investment which are in harmony with our earlier assumptions, namely, that the supply provided by a given borehole is fixed and cannot be added to except by a further investment which produces a permanent expansion in natural supply. Part of the flow can still, of course, be allowed to run to waste. We assume also that each well is owned by one person, and that no person owns more than one well. These assumptions enable us to avoid defining the "full utilisation" of a piece of productive equipment, a task which would complicate exposition without affecting principles or conclusions. The idea of "full utilisation" must obviously come in when we consider the *services* of plant, especially if it is not operated every day and for the whole twenty-four hours.

² The interlopers may, of course, be some of the original suppliers who wish to sink new wells, but we are here assuming that no person owns or invests in more than one well. In practice the "external forces" are often expressed not through new interlopers, but through expansion of the plant of existing producers. Our assumption is made for simplicity of exposition. It does not affect the principle.

to suppose that the aggregate actual output will be greater¹ and in spite of the interlopers contributing to that output having pushed out part of the supplies of others. Indeed, the interlopers might be allowed to sell the whole of their supply if that amounted only to a very small proportion of the whole. But if the supply of a single interloper happened to constitute a large proportion of the whole we can hardly imagine the acceptance of his full output as "reasonable"; and for that reason it is not very likely that he would intervene with the idea of selling all that his well provides. So low might value fall if the whole supply were sold that, in some conditions, a rational interloper must be regarded as having intervened only in the expectation of being able to share in the benefits of restriction, in being able to capture by a species of respectable (and given probable reactions, *desirable*) blackmail, part of the proceeds of a tax on consumers which the oligopolists have levied. For this, he will need to have some reserve supply (or "capacity") in hand. He will require a greater flow to enable his retaliation in the event of the non-conformance or "unreasonableness" of the others. He will know (in practice vaguely realise) that his success will depend upon the acquiescence of others, in their own interests, in his invasion. He will count on pacifism paying the attacked party, or that situation existing in which it will pay to let bygones be bygones.

On the other hand, every imminent invasion of their sphere will have an important effect upon the original oligopolists' motives. They may realise (*a*) that if they sell continuously the whole of their supplies it will not pay any interloper to bore a well; (*b*) that if they continue their present policy of tacit restriction such an intervention will be inevitable; and (*c*) that in that event their receipts under tacit collusion with the interloper will be no greater than if the whole of their present supplies were put on the market. Thus, in view of the probability that reasonableness will be less likely with an increase of numbers, and that one successful interloper will encourage others, we can imagine oligopolists voluntarily selling a quantity greater than their private optimum, and in the extreme case, selling the full flow for what it will fetch. For the effect of the addition of a well to the source of supply will be greatly to reduce the value of the increased full supply

¹ For the optimum price maximising aggregate receipts will be no different. We shall notice later the conditions in which a price intermediate between the optimum and the natural will rule.

(i.e. when none of it is allowed to run to waste). Hence the owners may believe their best policy to be to sell all that nature or their equipment provides; and once they are doing this, there will be no hindrance to the determination of values under natural scarcity, for subsequent interlopers will be completely protected. Moreover, given the absence of the right to discriminate, in view of the implications of our earlier discussion, it is improbable that aggression after the event (i.e. subsequent to the interloper's investment) will pay, especially against a small interloper. Hence the degree of restriction is likely to be reduced through potentially competing investment.

In the case in which the supplies of natural springs are inadequate from the point of view of popular demand and the cost of boring is low, then, even with the whole output being disposed of, further expenditure on boreholes will still be a profitable investment. The investor in these circumstances is absolutely protected against any deleterious effects from aggressive selling. It is when the existing price is above the level required to dispose of the present flow from springs plus the flow from existing wells, i.e. when part is running to waste or being accumulated, that a would-be interloper will hesitate, and his hesitation will be due to his realisation that if, following his entry, all the available supplies are thrown on the market, the price will then be too low to justify his contemplated investment.¹ Nevertheless, he may feel that for reasons that we have noticed, he can still count on the continuance of the ruling price, or some price not far short of that; and in those circumstances the prospective investment might be regarded as a legitimate speculation. Whilst fear of aggression among potential interlopers will therefore be greatest where tacit monopoly has produced a contrived scarcity by reducing the aggregate flow of a commodity, an entrepreneur may still see the probability of a small investment in the tacitly monopolised field being a good proposition; for he may rely, as we have seen, on existing suppliers not cutting their own throats in order to cut his. In this case the monopolist, duopolists, or oligopolists are likely to fix a price lower than the optimum but higher than the natural price in order to dissuade possible interlopers. This will result in a kind of equilibrium at a price above the natural, for there will be no tendency for

¹ In practice this circumstance is most often met with in the form of idleness, generally called "excess capacity" of plant, and not in the concrete form of the flow of a commodity partly running to waste.

independent investment to bring an equilibrium reflecting natural scarcities. Where this condition exists there must be present elements of "advantage of site and size," usually called "natural monopoly."

One case of this arises when the efficient scale of operations is so large that a particular area can be most cheaply served by one plant only. There will then be no obligation on its owner to sell the product or service at the price determined (under its efficient arrangements) by natural scarcity. Both the amount of fixed investment and the degree of utilisation of plant (i.e. the investment of mobile or "circulating" capital) will be determined by private, not social interest. To illustrate this with the simplest conceivable example, let us imagine our isolated community to be served, not by natural springs, but by a single well, constructed at a cost, which gives a certain supply. The owner knows that a further relatively small expenditure—say on pumps, will greatly add to its output; but judging the present flow to approximate to the optimum (from his point of view), he does not make this investment. Obviously no interloper knowing this to be the situation will intervene, for he will realise that the consequence will be that the former monopolist *will* make the further investment. The latter will then be in a position to produce a supply the sale of which will bring about a ruling price at which the available productive resources of society will be more profitably employable in other pursuits. Or, with a view to combating immediately any signs of interloping enterprise, the monopolist may purposely retain a reserve capacity. Thus the ability under these conditions to cut prices temporarily provides the power to deter competing investment and so protect existing monopoly. It is true that such a "natural monopolist" might be successfully "blackmailed" or "bluffed" along the lines suggested in the three previous paragraphs; and we may find him protecting himself against such a possibility by asking less than his optimum price as a permanent policy. But in his ability to *scare* off investment we have, nevertheless, the explanation of a form of threatened aggressive price-cutting which no type of anti-trust control resting upon the simple forbidding of discrimination can prevent.

The method of creating competitive institutions, and eliminating monopolistic institutions when natural monopolies or similar arrangements exist, is a difficult problem which we cannot now examine. The present writer has suggested

elsewhere¹ that the aim must be to remove autonomy from the individual firm in respect of the amount of investment and the degree of utilisation of equipment and other resources, and to subject the entrepreneur more effectively to social (i.e. market) forces. That is only one part of the field of anti-trust control, however, and to deal with it adequately we should have to consider the whole field. A careful analysis of the principles of competitive institutions would, it is thought, lead to the conclusion that diffusion of initiative in respect of the power to take advantage of non-equilibrium in relation to natural scarcity is the fundamental principle. But we cannot now dwell on the prohibition of deliberate collusion or amalgamation. What our discussion has made clear is that *the prevention of "unfair competition" is a perfectly straightforward function of anti-trust tribunals.* The simple and effective proscription of price discrimination, either in its obvious or hidden forms, would have prevented, it seems to the writer, the greater part of the monopolistic abuses which have so curbed the colossal natural and technological resources of the United States.² That is the impression gathered by an observer viewing American experience through the printed word and from the detachment of a far-off country. What has confused popular and some instructed opinion has been the focusing of attention upon the rights of producers, a defect which the conscious acceptance of consumers' sovereignty as an ideal instead of a vague conception of the maximisation of social utility or welfare might have removed. Unfair competition has been thought of as unjustly deleterious to certain producers. But the producer as such does not need protection.³ He has voluntarily taken the risk of meeting with retaliation in a régime which permits it.⁴ He cannot plead

¹ *South African Journal of Economics*, March 1934.

² Natural monopolies would still possess the power (although diminished) to control the amount of investment in them and the degree of utilisation of their plant, even in the absence of discrimination. We must admit that our failure to discuss the question of the desirability or the reverse of price discrimination on other grounds must be regarded as a serious omission. But the circumstances in which it is defensible appear to be capable of definition, they are clearly recognisable and, we believe, they are extremely rare.

³ There is a case for special protection through the courts of individuals or corporations when the prohibition of price discrimination is incapable of simple or common-sense interpretation. A story is told of a wealthy American who was annoyed by a hairdresser and took his revenge by subsidising a rival who followed him throughout the country and undercut him at "cut-throat" prices wherever he went until his ruin had been accomplished.

⁴ His interests may happen to coincide with those of the consumer, of course, in that laws which protect him in the short run may ultimately lead to the consumer's advantage.

that he has acted altruistically for it is impossible to plan economic institutions on the assumption that individuals will be motivated by altruism. The object of a law passed at any time to forbid "unfair competition" (i.e. price discrimination) must be regarded as that of protecting *subsequent not past* investors. Its purpose is to stimulate the *right distribution* of investment between different channels in the future; and the right distribution must be the decision of consumers' sovereignty. In the present writer's opinion, "injustice" to the producer can only be said to arise when he is "exploited" in the sense of being faced with a new or enhanced contrived scarcity of some co-operant resources subsequent to the immobilisation of his productive resources.¹ But that is a different point.

If the above analysis is valid, then it is plain that the implications, had they been understood by the framers and interpreters of anti-trust legislation, would have cleared away a whole mass of economic and juridical controversy. To some economists the central principle, namely the prohibition of discriminatory charging,² seems to have been obvious from subtle insight or sensitive intuition. This article has sought to demonstrate the truth of their views by an examination of the problem under the simplest conditions. There must be many a student in other countries who has viewed with as much dismay as disinterested American economists the results of judicial incompetence and political pressure which have frustrated the effective administration of the Sherman Act and its successors. If the present submergence of anti-trust legislation under "National Recovery" is to be permanent, the world may have lost one of America's greatest contributions to it, namely, experience in the art of creating competitive institutions.

¹ We can include in this category what may be called "development selling," namely, the temporary supply of co-operant resources at below the price determined by natural scarcity with a view to enticing exploitable investment in immobile form.

² What constitutes discriminatory charging in certain cases (e.g. in the case of plants rendering *services* at different times, or in the case of "return journeys") may not be immediately obvious. The present article is, however, merely concerned to make clear the principle.

The Extent of the London Discount Market in the Middle of the Nineteenth Century

By W. T. C. KING

THE London Money Market has long been a favourite topic with writers on monetary economics; but surprisingly few attempts have been made to estimate the extent of its resources at different periods of the nineteenth century. Because of the paucity of evidence available, much has been made by certain writers, notably by Palgrave,¹ of a statement in 1848 by James Morris,² then Governor of the Bank of England, who declared that he believed the Bank's discounts to be equal to those of private discounters in London. This statement has been utilised to show, what has come to be widely accepted, that until 1848, at least, the Bank was *quantitatively* supreme in the London Discount Market. In fact, it is possible to prove that Morris's statement failed to do justice to the discount business of either the private discount houses or the London banks; and that, even in the middle 'forties, the business of these discounters completely dwarfed the Bank's London business at its maximum.

By far the largest discount house, both in the 'forties and 'fifties, was Overend, Gurney & Co. The only other substantial bill-dealing houses—i.e. firms which "ran a book," and borrowed funds to finance bills carried on their own account—were Alexander & Co. (now Alexander's Discount Co. Ltd.), Bruce, Buxton & Co., and Sanderson & Co. None of these houses published accounts, but information given to the various Parliamentary inquiries in the 'forties and 'fifties is sufficient to provide a basis for a reasonably accurate estimate of the scale of their operations, both separately and collectively. To utilise this material for an estimate for the middle 'forties

¹ See, for example, his *Bank Rate and the Money Market* (1903), p. 49.

² To the 1848 Lords Committee on Commercial Distress (Minutes, QQ. 510, 511).

involves, however, a simultaneous estimate for the middle 'fifties. At the time of the 1857 crisis, the discount houses had to lean heavily on the Bank, and two of their number failed. The Bank, therefore, gleaned special knowledge of the scale of their operations, and the Governor, Sheffield Neave, stated that he knew that one house had between £8,000,000 and £10,000,000 of deposits, another about £4,000,000, and a third about £3,500,000.¹ The two houses which failed were Sanderson's and Bruce, and both had also suspended payment in the 1847 crisis.² The Report of the 1858 Committee, but not the published evidence, disclosed that at the date³ of their failure in 1857, Sanderson's (the "large bill brokers") were believed to have £3,500,000 of deposits. It is therefore a safe assumption that Sanderson's was the third house mentioned by the Governor. The Report⁴ also gives details, both for 1847 and 1857, of the capital and liabilities of the two firms which failed, without, however, assigning names to the firms. The evidence is as follows:

"... Two bill-broking houses in London suspended payment in 1847; both afterwards resumed business. In 1857 both suspended again: The liabilities of one house in 1847 were, in round numbers, £2,683,000, with a capital of £180,000; the liabilities of the same house, in 1857, were £5,300,000, the capital much smaller; probably not more than one-fourth of what it was in 1847. The liabilities of the other firm were between £3,000,000 and £4,000,000 at each period of stoppage, with a capital not exceeding £45,000."

The first house can be readily identified with Sanderson's, for the statement laid before the creditors' meeting after the failure showed liabilities (of which deposits formed only a part) of £5,298,990⁵—virtually the £5,300,000 quoted by the Report. As Bruce & Co. was the only other bill market firm which suspended payment both in 1847 and 1857, it is clear that Bruce was the "second" house. Its capital was, therefore, not more than £45,000, both in 1847 and 1857, and at the latter date its liabilities were between £3,000,000 and

¹ 1858 Select Committee on the Bank Acts, Minutes, Q. 402 and Report, page v.

² 1858 Report, Para. 52.

³ November 11th, 1857.

⁴ 1858 Report, page xlix, section 52.

⁵ *Bankers' Magazine*, 1858, pp. 41-43, and Morier Evans, *History of the Commercial Crisis*, 1857-8, App., p. cxliv.

£4,000,000. Its *deposits* must, therefore, have been much smaller than this; had they borne the same proportion to total liabilities as did Sanderson's (in 1857 these were £3,500,000, compared with £5,300,000 of liabilities) they would have amounted to between £2,000,000 and £2,650,000. Bruce & Co. could not, therefore, have been, as at first sight they seemed to be, the house with £4,000,000 of deposits to which Neave referred in the evidence first mentioned. This house, in fact, was quite evidently Alexander's. Thus, in 1857, the order and size of the four leading dealing firms must have been: Overend's, £8,000,000 to £10,000,000¹; Alexander's, £4,000,000; Sanderson's, £3,500,000; and Bruce, £2,000,000 to £2,650,000. This fixes the deposits of the four houses at between £17,500,000 and £20,150,000.²

From these figures it is possible to work backwards to an estimate for 1847. It has been established that Sanderson's capital at that date was £180,000, and its liabilities were £2,683,000, and that the similar figures for Bruce & Co. were not more than £45,000, and between £3,000,000 and £4,000,000, respectively. No figures, unfortunately, were given by the 1858 Report for the deposits of the two firms in 1847, and "liabilities" necessarily included both deposits and re-discounts. Indeed, there is reason to suppose that partners' capital was also included. Sanderson's deposits, at the date of the suspension in 1847, were, however, disclosed to the meeting³ of creditors held to consider the position. The statement submitted to the meeting showed that deposits at call amounted to £790,989, of which £168,420 was unsecured, with re-discounts totalling £1,725,000. These figures, of course, represented the position of the firm at the worst point, after it had sustained a period of extreme difficulty, with heavy demands for repayment of deposits, necessitating forced sales

¹ That Overend's was the leading house hardly needs proof, but it is afforded by the 1858 Report. In the course of evidence, there was a reference to an application by the "leading discount House" for £700,000 at the Bank, the identity of the borrower being carefully concealed. The compiler of the index to the Report, however, lets "the cat out of the bag," for he indexes the point as "application by Overend, Gurney & Co. for £700,000."

² Somewhat similar reasoning to the above was employed by Gilbert in his *Logic of Banking*. Gilbert, however, though using the 1858 Report as the basis of his argument, utilised only part of the evidence which it afforded, and he also completely ignored Bruce & Co. For these reasons, his estimate of deposits (of Overend's, Alexander's and Sanderson's only) differs from the above—his figure was £15,500,000.

³ Held on September 20th, 1847, and cited by Morier Evans, *The Commercial Crisis, 1847 and 1848*, App., p. xlii.

of bills.¹ Thus, its normal deposits must have been substantially larger, and its re-discounts a good deal smaller, than the figures just quoted. In view of the size of the capital, it seems reasonable on the evidence available to put the normal deposits in the middle 'forties at not much less than £2,000,000.

There is no evidence to show the amount of Bruce & Co.'s deposits at the date of suspension, but in view of its much smaller capital, it seems probable that the greater part of its £3,000,000 to £4,000,000 of liabilities consisted of re-discounts, for the firm was solvent and resumed trading, as did Sanderson's. Moreover, to judge from contemporary comment about Sanderson's,² there can be little doubt that the house was substantially larger than Bruce & Co. and had a much better connection with banking lenders of call money. Bruce's "normal" deposits, all factors considered, may be put at about £1,000,000. It remains to assess the figures for Overend, Gurney & Co. and Alexander & Co. Here, unfortunately, there is no definite evidence. But, allowing on the one hand for the considerable increase in the scale of banking and in the practice of lending at call between about 1845 and 1858, and on the other for the undoubted importance of Overend, Gurney & Co., even at the earlier date, it may be suggested that the firm's deposits in the middle 'forties could hardly have been less than about £6,000,000,³ and may have been more. There is even less evidence on which to base an estimate of Alexander's figures, but in view of the fact that its deposits in 1857 were around £4,000,000, it is hardly likely that ten years or so earlier they were below £2,000,000.

In sum, these somewhat tortuous deductions suggest that the deposits of the four bill-dealing houses in the middle 'forties aggregated about £11,000,000.

This figure may now be considered in the light of Morris's evidence, the exact text of which is as follows:

¹ According to the *Bankers' Magazine*, suspicions that the firm was in difficulties (owing to failures in the corn trade) had led to the "liquidation of extensive claims" on it in the four weeks before the suspension. (*Bankers' Magazine*, Vol. VII, October 1847, p. 517).

² The Lords' Report refers to the firm as "an eminent discount broker having a large country connexion," whose suspension closed "one of the principal discount channels between the country and London."

³ It is relevant to note here that as early as 1836, Gurney's must have had a "book" of very considerable size: they alone received at this date £3,000,000 of accommodation from the Bank during the pressure caused by the West Indies loan. (See 1848 Commons' Committee, Minutes, Q. 1576.)

"I do not think that in ordinary times the Bank has more than its proper proportion of discounts. I consider that in London the discounts by other parties, the great discount brokers and bankers, must be equal to the amount which the Bank holds under discount.

"Do you think that they have as many millions of capital disposable for the purposes of discount accommodation?"

"I think the discount brokers and other parties afford altogether an amount of discounts equal to that afforded by the Bank, except in times of extreme pressure."¹

It must be noted, in the first place, that this statement is ambiguous, not only because Morris did not specify whether he meant that the *London* discounts of the Bank, or its *total* discounts, were equal to those of the London outside market, but because he specifically included London bankers in his first answer and omitted to mention them in his reiterated reply. If he meant that the Bank's *total* bill portfolio equalled that of the London discount houses alone—though his words hardly bear that construction—then the estimate might have been reasonably accurate, for, in the middle 'forties, the Bank's portfolio frequently reached £10,000,000 (though it was generally below this figure), and occasionally rose above £13,000,000.² But if he meant to include the London *bankers'* discounts, as he specifically did in the first answer, then whether or not he referred to the Bank's total discounts, or only to its London discounts, his estimate cannot be sustained.

In 1844, the deposits of the London banks totalled about £35,000,000,³ of which about £3,600,000 represented those of the London and Westminster, which kept about 35 per cent. of its assets in the form of bills bought from brokers. If the similar proportion for the London banks as a whole were no larger than 25 per cent.—it was probably more—the total

¹ 1848 Lords' Committee, Minutes, QQ. 510, 511.

² The Bank's *London* discounts, however, never reached even £8,000,000, between 1844 and 1847. Their extreme range during this period was as follows:

	Minimum	Maximum
1844 (after September 5th) ...	£ 113,000	£1,288,000
1845	670,000	5,781,000
1846	3,065,000	7,845,000
1847	4,340,000	7,844,000

(See 1848 Commons' Committee, Appendix 8.)

³ Joplin's estimate (Joplin, *Currency Reform: Not Depreciation* (1844), page 38). Joint stock bank deposits were about £8,850,000 in 1847 (Gilbart, *op. cit.*, page 567, and 1858 Report, section 8).

"brokers' bills," i.e., the aggregate open market discounts of the banks, would be only a fraction under £9,000,000. Even the most meagre allowance for the portfolios of the discount houses would raise the aggregate London private discounts to substantially more than the Bank's total discounts, whose peak figure in the 'forties was £13,137,000. And if the estimate, framed above, of £11,000,000 for the discount houses be reasonably accurate, it is clear that the banks *plus* discount houses must have afforded open market discount facilities of little short of £20,000,000, or considerably more than double those afforded by the Bank of England in London, and at least 50 per cent. greater than its *total* discounts at their maximum point. Morris's evidence does not, therefore, justify the conclusions which others have drawn from it. In all probability it was never intended as a precise estimate, for Morris's aim, on the spur of the moment, was to defend the Bank against the charge of exerting an undue influence in the open market. He therefore affirmed that the private discounters, whose exact size he did not know, were just as important as the Bank, and probably intended to convey the impression that he believed the private discounters to be the greater.¹ Indeed, he said as much in later evidence (which Palgrave, in particular, seems to have overlooked), "I should think that taking the leading discount brokers in London, and the bankers and merchants, they would in the aggregate have an amount of discounts exceeding that held by the Bank."²

In the absence of new data, the figure of £11,000,000 may be taken as a rough measure of the extent of specialist bill dealing business at the time. It is possible that, apart from the four houses already discussed, there were a few firms which also acted technically as dealers rather than brokers. It is certain, however, that none of them ran a "book" of any appreciable size. They may have secured small deposits from commercial sources, and thereby financed a few bills, but most of their business must have consisted of a quick turnover of bills, differing from that of the strict broker only in that they made a profit from a "turn" in the rate instead of from a fixed brokerage.

¹ It is to be noted that in both answers he said that the private discounts equalled those of the Bank, and not that the discounts of the Bank equalled those of the private discounters.

² 1848 Lords' Committee, Minutes, Q. 625.

Gold, Unemployment and Capitalism

If anything could prove, in the face of the present overwhelming tendency towards economic nationalism, the remarkable community of interest between industrial nations, it would be Professor Gregory's book.¹

All the great problems which occupy the attention of Great Britain, and are dealt with in this book, are those which occupy at the same time the attention of France, Germany, Belgium, Italy or the United States. The future prospects of the capitalist system, the effects of rationalisation on the increase of unemployment, the future of international trade, and, finally, the function of gold and the future organisation of monetary systems, these are the questions which form the principal subjects of the conversations both of industrialists and of politicians and which are presented to us daily in the papers and reviews. The revolution in prices throughout the world is a universal phenomenon. Every country watches with anxiety in the hope of learning from their exposition, the solutions by which its neighbours and its competitors attempt to solve the daily difficulties to which this revolution gives rise. On every one of these subjects Professor Gregory throws some new light or offers interesting views on future developments. To do justice to the wide range of this book it would be necessary to consider with the author every one of these important problems and discuss them with him. This is an impossible task in a brief review. We must content ourselves then by selecting the most interesting of these ideas.

All the articles which compose this volume have one feature in common—the courage with which Professor Gregory applies analysis and economic reasoning to each of the problems he raises. He never allows himself to be diverted by feeling or excitement into adopting catchwords of the day or easy solutions. Thus he confirms his allegiance to the great traditions of the English and French utilitarians and rationalists, a tradition which (despite the political romanticism which so many writers adopt to-day) every economist worthy of the name always upholds at all times and in all places.

As particularly happy examples of this art of analysis, whereby he arrives at new and far-reaching conclusions, I may cite, above all, articles such as "The Future of International Trade," "Common Sense and the Balance of Trade," "Unemployed Men and Unemployed Money." These articles contain scarcely more than a dozen pages, but they are

¹ *Gold, Unemployment and Capitalism*. By T. E. Gregory. pp. xvi, 308, tables. P. S. King. 1933. 12s.

models of precise discussion, deliberately discarding the ambiguities inherent in popular phraseology and illuminating each subject with a new light.

For example, in "Common Sense and the Balance of Trade," Professor Gregory remarks that the international depression and the fall of the pound have reduced the foreign income of Great Britain. Now this reduction must necessarily have the effect of diminishing the total of imports. Without a doubt, Great Britain still exerts, as a consumer of great quantities of foreign products, a considerable influence on the price of these products: "We are still so important an element in the markets of the world that cessation of buying on our part reduces prices of the things we used to buy, and this enables our remaining income to go farther than it otherwise would" (p. 212). But this compensating factor cannot prevent a reduction of the "standard of life in the immediate future" for Great Britain will necessarily divert her activities to less remunerative industries: "It is only now, when we have rejected free trade, that we see that our standard of life was really built up upon two principles—the concentration of production on the lines of greatest profitability and upon the possession of a balancing factor in the flow of income which was to a large extent independent of local vicissitude" (p. 212).

Another important idea expressed by Professor Gregory, which deserves to be carefully pondered, is that profound changes in the economic structure are tending to reduce international trade in the future, at least in relation to general economic activity.

The first point he mentions is the tendency which wealthy countries have to increase the consumption of services in comparison with that of products: now these services, given the obstacles to immigration which exist, can only be found in the interior of each country. He then points out the slowing down in the growth of the population, which has the effect of lowering prices of food stuffs and raw materials, and consequently compels agricultural countries to set up *their own* industries, protected by high Customs barriers, to give occupation to the now surplus agricultural population.

Finally and above all—and in my opinion a most far-reaching observation—he mentions the scientific discoveries which are gradually releasing each country from its ancient dependence on its natural products. The possibility of extracting petrol from coal, or of making artificial silk, permits any country to do without imports of petrol or cotton. "The problem to-day is no longer the high cost of carriage, but the increasing degree to which science is making the whole world independent of local circumstances in the production of necessities, coupled with an increasing determination on the part of agricultural peoples to emancipate themselves from the dominance of the advanced, industrialized states" (p. 204).

These are some of the problems on which Professor Gregory offers us some profound, if not optimistic, opinions regarding the economic future of the world.

Not less suggestive are the two studies entitled, "An Economist looks at Planning," and "The Future of Capitalism."

"Planning," in England as in France, raises the enthusiasm of the younger generation as before the War it stimulated the socialist ideas of Webb, Cole, Tawney or Laski (p. 285).

But what is planning? It is the suppression of the free market and of that "subordination to the demands of that market of the entire productive mechanism," which constitutes the essence of capitalism (p. 299). This suppression is not an impossibility. Far from it. No more is a planned economy: "a planned economy is not an impossibility, but a tragedy: a tragedy in the sense that such an economy is utterly unable to fulfil the expectations of those who bring it about" (p. 288). For it can foresee everything, *except change*. "A planned society which plans for changes is, in fact, a contradiction in terms. Either the plan is sound or it is unsound: either it admits of alteration, or it does not."

But how can change, or the demand for change, be prevented except by force? A planned society can, therefore, only rest on the principle of force, and the further the principle which serves as the base of the plan is separated from the guidance of rational economic calculations, "the greater the degree of force necessary to maintain the system in being" (p. 292). Professor Gregory's conclusion is not without bitterness: "I see no reason, then, why the world should not pass into a new era of absolutism and intolerance, why the writings and teachings of the French and British humanists and utilitarians should not be burnt as dangerous documents by the public hangman and why the desire to improve one's position should not be treated as a crime to be punished as theft is to-day" (pp. 293-4).

Apart from those articles which touch on the very philosophy of our economic system, Professor Gregory's book is, for the most part, devoted, as one would expect of a writer so profoundly versed in questions of money and credit, to the problems raised since the War by the disturbances of the monetary and banking system.

We may distinguish here two types of articles. On the one hand descriptive articles such as the two on the American panic of 1932 and the American banking system of 1925 (we may note in this latter article on page 145 the accurate and almost prophetic opinion on the prestige of the federal reserve banks, much greater abroad than in the United States)—the article on the "Causes of the Gold Movements," and that on "Great Britain and the Gold Standard" (so valuable an explanation to foreigners of the attitude of English opinion with regard to the gold standard).

The other articles are more theoretical, such as that on the "Mal-distribution of Gold" (certainly one of the most perspicacious which has been written on this difficult subject), the appendix to the Report of the MacMillan Committee, the two articles on Central Banks, the article entitled "Whither the Pound?" and the report made in Australia on "Current Problems and International Trade."

The descriptive articles will deserve for a long time to be read as particularly lucid and competent expositions of the American and English situations at a particularly critical time.

The others touch on all those questions relating to the function of gold and the policy of central banks about which economists have been debating for the last ten years. Perhaps we may be permitted to say that on these problems, as he himself quite frankly avows, Professor Gregory's position has not always been the same. On page 11 of the Introduction he states, in fact, "From the beginning of my interest in these questions, I have been much more sceptical than many of my colleagues as to the practical possibilities inherent in Central Banking." It is sufficient to cite the article of 1924 entitled: "What can central banks really do?" There one finds the following phrase: "Is it quite so certain as some people confidently assume that the price structure is directly dependent upon the volume of bank loans, and is it quite so clear as these same people imagine that the volume of bank loans is capable of direct control by manipulation of the rate of interest?" (p. 173). The same scepticism appeared again when in 1930 he defined, in regard to the projected reserve bank of Australia, the functions of a central bank. These functions in his eyes are: "to secure financial stability at home and parity of the local currency with the international gold standard" (p. 176). This stresses sufficiently his opposition to writers like Hawtrey or Keynes, for whom the function of central banks is essentially the maintenance of prices.

If I may express a regret, and it is the only one inspired by my reading of Professor Gregory's book, it is that he has not given in an adequate article the reasons for his quite justified scepticism. I very much hope that one day he will find time to give them with all the authority and all the force which he can put into his articles. For my part I do not believe that there has been, in the course of the last ten years, a worse error than that which continually affirmed that it was possible by credit devices to maintain gold-prices at the artificial level such as existed at the end of the War. The effort made by certain economists to impose on the world a credit policy intended to maintain this artificial level regardless of circumstances has been one of the most disastrous for the monetary reconstruction of the world. It rests, in my opinion, on a theoretical error long ago revealed by one of the best English economists, whose lessons unfortunately seem to have been lost, but whom Professor Gregory knows well from thorough study—Thomas Tooke.

To believe that it is possible to counteract the normal action of gold on prices by a credit policy of central banks is to fall into obvious error about the world price mechanism. To-day, in view of the collapse of the artificial price structure created during and after the War, and of the return to a level of gold-prices more in conformity with the true relation between the production of goods and that of the precious metals, the falsity of the conception which attributes to credit the power of acting permanently on prices is clearly demonstrated. Throughout Professor Gregory's articles

one feels that there runs the lack of confidence which he has in such a doctrine, despite the ability with which it is defended in England, contrary to the majority of economists in the rest of the world and to the governors of the central banks.

Professor Gregory will one day give us, I hope, the critical study which he, more than anyone, is capable of writing on the impossibility of maintaining the level of prices by credit. This would but complete the series of articles so perspicacious, so wise, and at times so eloquent, in their restrained energy, which compose this remarkable volume.

CHARLES RIST.

Book Reviews

Kapital und Produktion. By RICHARD VON STRIGL. (Beiträge zur Konjunkturforschung, Vol. 7, ed. Oesterreichisches Institut für Konjunkturforschung.) Julius Springer, Vienna. 1934. x + 247 pp. RM. 7.80.

Kapitaltheoretische Untersuchungen. Mit einer Einleitung: Was leistet die nationalökonomische Theorie? By WALTER EUCKEN. (Probleme der theoretischen Nationalökonomie, Vol. 1, ed. Walter Eucken.) Gustav Fischer, Jena. 1934. vi + 194 pp. RM. 8.

The congruence of the ideas expressed in the books before us is so striking that they could have been written and published only at the same time, for neither of the two authors would have repeated so uniformly what the other had said before. This conformity begins with the method recommended and used by both authors, the method of variation which analyses the effects of a change of one among a set of given data. The two authors also have the same theory of value—the subjective value theory; the same theory of costs—the opportunity cost theory; the same theory of capital—the theory of the subsistence fund which allows shorter or longer, i.e. less or more productive roundabout ways of production; and the same theory of wages—the theory of the wage fund which determines the marginal productivity of labour.

Professor Strigl establishes at the outset the proposition of the increasing productivity of longer roundabout ways of production. The existence of a subsistence fund is the condition for such productive methods of production. "Synchronisation" of production does not make the fund dispensable (p. 14). The subsistence fund permits "reproductive consumption" which is distinguished from "pure consumption." If the recipients of interest and profit consume their income they indulge in pure consumption (pp. 148-9), since it is, though perhaps a "reward" for former services, not a condition for continued operation of roundabout processes. The main part of the subsistence fund is supplied by the replacement fund, which is created by the production of consumers' goods (p. 30). The production of producers' goods must stop, if and when no replacement fund is created in the consumers' goods industry (p. 37). Capital appears in three forms, as "free capital," as "goods in process," and as "fixed capital." Free capital is complementary to fixed capital (p. 46). If there is too little free capital for a certain length of the period of production or, what is the same, if the period is too long for the size of the subsistence fund, the period must be shortened. This shortening

can take place in two ways: (1) A number of long processes is discontinued and more free capital used to expedite the other processes; (2) goods are transferred, if possible, from earlier to later stages. A possibility for avoiding the shortening of the period would be to "stretch out" the subsistence fund, i.e. to make it last for a longer period by dividing it into smaller portions (pp. 49-50).

After a survey of the pricing process, the laws of costs and of substitution, and the principle of marginal productivity, Professor Strigl proceeds to an analysis of the marginal productivity of the subsistence fund. The change in total product due to a change in length of the period of production is imputed to the change in the subsistence fund on which it depends (pp. 83 *et seq.*). The supply of capital is not to be shown in an ordinary supply curve, because there is no necessary dependence on interest rates of the supply of savings (p. 96). Every wage payment is made out of the subsistence fund except the wages in the last stage of production, where no time of economic relevance elapses between input of labour and the output and sale of consumers' goods (p. 98). The subsistence fund, recognised above as complementary to fixed capital, is also complementary to labour (p. 104). The more labour has been transferred to earlier stages of the production process the greater is the part of the labour supply which can be employed only when the complementary wage fund is available (p. 105). Correctly expressed, the subsistence fund is the wage-and-rent-fund of the community.

There are, in the next sections of the book, a few blemishes which are somewhat disturbing. In dealing with the principles of cost and substitution an irritating terminology is used. The two principles are distinguished by Strigl in a Casselian way which cannot be done if, at the same time, the opportunity cost theory is maintained. It accords, furthermore, ill with this theory, as well as with the Marshallian cost theory, when "spreading of fixed overhead costs" is dealt with as a genuine case of decreasing costs of production (pp. 120-8). This is a (by no means rare) confusion between average cost and marginal cost. Another confusing point occurs in the analysis of saving and consumption. It is asserted (p. 150) that an increase in saving and investment cannot bring with it any quantitative change in demand for consumers' goods. This is the old Ricardian theory (see Eucken, p. 143), but still incorrect. The transfer of consumers' goods from pure to productive consumption, which renders possible, according to Strigl, a lengthening of the production period, means that a given total consumption takes place over a longer period of time. Consumption in the "period of production" remains unchanged but, since the period is longer, consumption per unit of time must be decreased. Fortunately, there are no conclusions drawn by Strigl from his questionable proposition.

The next chapters in Strigl's book deal with money capital and the business cycle. Free money capital must have, in the "real" world, its counterpart in a fund of means of subsistence. To finance a roundabout way of production is to sustain the employed factors (p. 173). The

creation of additional bank credit makes for an excess of financing over sustaining. There is then the problem whether or not it is possible to collect in every stage of production a replacement fund large enough to secure the volume of production in all earlier stages to be maintained (p. 183). If the banks kept their discount rates continuously below the equilibrium rate the result would be a complete disappearance of any subsistence fund (p. 186). Credit expansion causes an increase in wage payments no matter whether the amount of labour employed increases or not. The pay roll increases because of more labour or because of higher wage rates. This leads to increased demand for consumers' goods. There is, therefore, resulting from credit expansion, a simultaneous increase in demand for capital goods and for labour and, through the latter, for consumers' goods. This means lengthening of the production period and consumption of capital at the same time, a distortion which must lead to a breakdown (pp. 192-7). It will be noted that the absence of a lag of the increase in consumption behind the increase in investment distinguishes Professor Strigl's cycle theory from Professor Hayek's. In the concluding sections depression and deflation are discussed. Strigl gives full "credit" to the deflation and its detrimental effects, but he warns against reflationary measures, which may relieve the situation but aggravate capital consumption or prevent readjustment and, thereby, lengthen the depression (pp. 228-32).

Whether or not Professor Eucken would agree with Professor Strigl in the field of business cycle theory is not certain. We do not know because Eucken does not continue his analysis far enough in this direction. He uses his excellent fundamental investigation of the problems of capital and interest ("first investigation") as a basis for inquiries into the theory of saving ("second investigation") and into the problem of machines ("third investigation"). It is the first investigation which bears the striking resemblance to Strigl's, which was stated above. The great advantage of Eucken's analysis is its conciseness. The analysis, extending over eighty pages, is a model piece of economic reasoning. If such exposition had been available in English a host of misunderstandings in recent discussions of capital and the production period would have been avoided.

Professor Eucken begins his analysis with a survey of the data. There are: (1) the wants of men; (2) the gifts of nature, their quantity and quality; (3) labour capacity, its quantity and quality; (4) technical knowledge; (5) the subsistence fund, its size and kind, and the stock of durable instruments; (6) the social order (legal, economic, market conditions) and habits. It will be objected in some quarters, that this author has taken the supply of original factors of production as given data, but Eucken is entirely right in distinguishing available productive capacity, as data, from employed productive services, as an economic problem (pp. 57-62). After having discussed the data and the problems involved for the simple (single plan) economy and for the exchange economy, Eucken posits the existence of four "empirical rules," which

are of decisive influence on the methods of production chosen: (1) An increase in the quantity produced can be had if the average period between input of productive services and output of mature consumers' goods is increased. (2) To lengthen or shorten the "average period of maturing" is, in the main, to change the kind of productive services used. It is a different sort of service of nature or men which is used in the lengthened process from what it was in the former process. But it is the same original factors of production (nature and men) which yield the different sorts of service; there are certain productive capacities of existing factors which can be utilised only in a lengthened period of maturing. (3) With the lengthening of the average period of maturing, new durable as well as new non-durable production goods may come into existence (it should be noted that Eucken considers all durable goods, including durable consumers' goods, as means of production). (4) The rate of increase of the product which is to be had from a lengthening of the average period of maturing decreases from a certain point on. It may even become zero (pp. 68-85).

The "data" and the "rules" determine the methods of production, the average length of the period of maturing. In a production without durable instruments one could see real ends and beginnings of processes with marked caesuras, therefore real "periods of production." With the use of durable instruments, which pass through a number of repeated processes, production becomes continuous. One ought not to speak of production periods any longer. But that real periods of production cannot be seen, once durable goods are used, does by no means render the average "period of maturing" less significant (pp. 97-9). Determination of the average length of that period is at the same time determination of the rate of interest and of the values of productive factors. The values of productive factors are, other things being equal, dependent on the size of the subsistence fund available. Things may have high values when the subsistence fund is large, but no value at all when the subsistence fund is small (p. 89). The increase of value due to an increase in productivity, which is in turn due to an increase in average length of the period of maturing rendered possible by an increase in subsistence fund, is the source of interest. Such increase in value is to be found in a simple Crusoe economy as well as in an exchange economy. In the latter entrepreneurs are able, and in competition with other entrepreneurs also willing, to pay interest for the temporary disposal of subsistence funds because of that increase in productivity and the value of factors that depends on the command over the subsistence funds (p. 116).

The wage fund theory held that wages must be equal to the existent wage fund divided by the number of workers. The question was not asked—and not answered—for what period the fund would have to last. The answer is that the period of consumption has to be equal to the period of reproduction. If the forgotten time element is introduced into the wage fund theory the productivity element comes with it. The productivity of labour *per se* would be indeterminate until the size of the

subsistence fund (or subsistence stream) and, therefore, the length of the possible period of maturing are known (p. 120).

In his investigation into the theory of savings Eucken describes two ways in which refraining from consumption may be connected with lengthening of the period of maturing. The first is characterised by a phase of decreased consumption followed by a phase of increased investment, the other by investment simultaneous with saving (p. 139). Eucken believes that in a money economy voluntary saving is of the first type, and forced saving of the other (p. 147). But he does not enter into a discussion of forced saving and its consequences, because of the extensive examination of monetary problems that would be necessary for such a task.

The third investigation, that into the problems of introduction of machines, is more a setting than a solving of problems. But it is carried through with much clarity and acuteness. One may hope that the avenues and paths towards the solutions indicated in this investigation will be followed with good results.

Eucken's volume opens a new series of economic treatises. He prefaces it by a methodological thesis titled "What is economic theory good for?" This thesis excels by its clarity and conciseness. It is to be recommended to any student of economics whether or not he likes to indulge in methodology.

Fritz Machlup.

Grundprobleme der Nationalökonomie. By LUDWIG MISES. Fischer, Jena. 1933. Pp. xvi + 216.

I. This collection of essays on the method, scope, and significance of economics and sociology has for its main theme the justification of the ways of pure theory. This is a field in which science has won a position that now seems indisputable on any grounds short of complete irrationalism. But there seem to be many who are still prepared to deny the logical consequences of such a position without explicitly disputing the steps by which it has been reached, and it is against the arguments and assumptions of these that Professor Mises' book is chiefly addressed. All the same, the reader, who does not feel able to accept Professor Mises' main contention without smothering private doubts on many stimulating points of detail, will hardly have learned the greatest of all the lessons that Professor Mises himself, by example no less than by precept, inculcates.

II. German and Austrian social scientists, more than English (although not American), have suffered from the embarrassments of misplaced historicism, and it is with this type of confusion between methods appropriate respectively to philosophy and to science that Professor Mises is chiefly concerned in his discussion of the methodology of economic thought. No serious objection to his position is likely to emanate from either practising economists or practising historians. It is rather in their explanations of what they propose to do than in their

actual performances that methodological "schools" are wont to differ.¹ (But it is perhaps true that the more thorough-going a rationalist the reader may chance to be—and a non-rationalistic science is as difficult to imagine as a rationalistic philosophy—the less disposed he may be to accept some of Professor Mises' *obiter dicta* on the role of mathematics in economics. And there will also be some pragmatists, or at least some empiricists, among his readers, who will find it hard to accept all the conclusions that he draws from the postulate that a theory must be either true or false.)

III. As Professor Whitehead tells us, one of the last things to be discovered in any science is what it is all about; but there is nothing paradoxical in this. It is almost inevitable, seeing that the delimitation of the scope of a science is (like any other classification) purely a matter of convenience. It is impossible to *prove* what the subject-matter of a science ought to be; the only appeal is to what is customary and useful.

Now economists have never disagreed very profoundly about the scope of their subject. They have always defined it with more or less conscious reference to the "economic principle" of getting the most out of a given situation. Where they have differed has chiefly been over the secondary matter of defining the terms in which the "most" and the "given situation" are to be described. The Classical School, as Professor Mises points out, adopted what now seems an unwisely narrow formulation of both of these sets of data. Nowadays, a much wider formulation is usual, at least in certain circles, and readers of Wicksteed and Knight will not find much to disagree with—although they will certainly find much that is novel and illuminating—in Professor Mises' interpretation of the thesis that an economic problem exists wherever there is a problem of choice between alternative lines of conduct.

But to accept this general definition is not necessarily to rule out the use of more particularised definitions of the scope and aim of the choices dealt with in particular problems. Whatever methodologists may say on general grounds, the term "economic" will undoubtedly continue to be used, and not only by laymen, in a sense connected with "the measuring-rod of money." Professor Mises' suggestion that we should distinguish between considerations that are economic in the broader sense and those that are economic in the narrower (monetary) sense is therefore very welcome. After all, there are many economic problems in which the narrower connotation is by far the more useful, at least for purposes of first approximation.²

¹ See chiefly pp. i-xvi and 1-22, and in particular the key-stone of the argument in the proposition "*dass der Geschichtsschreiber kein Abbild . . . der Vergangenheit bieten kann, vielmehr eine . . . Umbildung . . . und dass Darstellung und Umbildung vorgefasste Begriffe verlangen, die der Geschichtsschreiber im Kopfe tragen muss, ehe er an die Arbeit schreitet.*"

² See, in particular, pp. 137-9, 146-50, 163-9; and also pp. 31 and 85. For a recent example of the narrower use of the term, see J. Robinson, *The Economics of Imperfect Competition*, p. 6. Cf. L. T. Hobhouse, *Social Development*, p. 319.

Professor Mises, however, is rather concerned with the boundaries separating the natural from the social sciences than with the boundaries within the latter group. And this, of course, is the major division, and the one with which many of our chief methodological problems have been connected. Deriving the cleavage between the two groups from our failure to find, even in materialism, a link between physical and psychical phenomena, Professor Mises draws conclusions respecting method as well as scope from the proposition that *unser Denken über Menschen und ihr Verhalten, unser Verhalten zu Menschen und zu der uns umgebenden Welt überhaupt setzen die Kategorie Handeln voraus*. It is upon this view of the nature and significance of *Handeln* that Professor Mises builds his argument concerning the scope of sociology, and hence of what is, according to Professor Mises, its best-developed section, economics. (See also § IV below. Professor Mises' distinction between the natural and the social sciences—a view which suggests that the name human sciences might have been a more suitable name for the latter, if names ever meant anything in themselves—leads also to some interesting speculations on the relative spheres of experiment and introspection.)

Professor Mises' views on the further divisions between economics and the other social sciences must be inferred chiefly from his discussions of *Handeln* and the relations of economics and psychology. All science is, of course, ultimately one study, and constitutes a field of knowledge which, for any particular discipline, falls into two divisions—the knowledge which is the province of that particular discipline and the knowledge which it takes on trust from other disciplines. All the knowledge in this second group constitutes its data, but just as each science is itself defined with reference to a particular principle, so this particular principle in each case determines the form in which this outside knowledge is presented as data to the science in question.

Any study of the scope of a science thus resolves itself into a discussion of (i) the principle by which considerations proper to that science are separated from those proper to other sciences; and of (ii) the relationships between that science and, *not* other sciences, but all the rest of knowledge *grouped according to the criteria of the science in question*. It will be convenient to discuss separately what Professor Mises has to say on each of these points.

IV. The economic principle in its widest sense is for Professor Mises the principle of *Handeln*—a word which in this context is practically synonymous with Professor Knight's *conduct* or *rational behaviour*. This implies no more—and no less—than behaviour consciously directed towards an end, as distinct from behaviour that is an end in itself, and from behaviour that is determined by causes exterior to the subject. This, allowing for differences in the use of words, is substantially the point of view of Professor Robbins and the view that is implied throughout the whole of Wicksteed's *Common Sense of Political Economy*. But its consistent adoption leads to difficulties, certainly not insuperable, but

hardly surmounted as yet. There is, for instance, the question of what sort of a field is left for the other social sciences if economics requisitions all conduct for its province. This is a question about which Professor Mises gives us very little help. The less serious objection that the adoption of this point of view sometimes commits us to breaking butterflies on wheels is forestalled by Professor Mises' suggestion concerning the concept of *Wirtschaften im engeren Sinn*.

(See in particular pp. 22-34, and also pp. 13, 14, 17, 49-63, 137-41, 159. Cf. F. H. Knight's *Risk, Uncertainty, and Profit*, pp. 51 ff. As Professor Robbins has pointed out, the word "rational" may be used in two senses each of which is different from the above (see *The Manchester School*, 1934, p. 100), but *Handeln* (and Professor Knight's usage) do not imply these further meanings, however necessary one of them may actually prove in the interpretation of value-scales. Perhaps Mrs. Robinson's attempt to side-step some of the difficulties indicated in these passages by the use of the concept of "sensible" action is not to be recommended for imitation.)

V. Professor Mises' views on the relationship between economics and history have already been mentioned as hardly likely to arouse serious opposition. The same may be said (with one significant exception) about his views on the converse relationship between economics and practical politics. (On the interesting borderland between economics and political theory Professor Mises has little to say, and has indeed, in a previous volume, left little to be said.) His most controversial views are those concerning psychology on the one hand and valuations on the other.

It is, for instance, very difficult to understand how to interpret Professor Mises' express denial that economics and psychology can have anything to do with one another. Even if we were to accept the proposition that the purely theoretical conclusions of economics need not depend upon the truth of any particular psychological postulates (and it is doubtful if even this proposition is unassailable), we should still have to account for the existence of arguments in Applied, and still more in Social, Economics (as Wicksell defines these studies), which make use of many and varied assumptions as to the ways in which human beings will react to given circumstances; and if these assumptions are not to be drawn from psychology, I do not know where we are to go for them.

(Of course, we may "look and see" as Richard Jones suggested. But this would merely be to set up as amateur psychologists ourselves and so offend against one of the most immediate applications of the Law of Comparative Cost. When Professor Robbins tells us to eschew the word "psychological" and talk only of "psychical" data (*op. cit.*, p. 89), he seems a little less than customarily generous towards a sister science, which, to make matters worse, is prevented by the paucity of our own nomenclature from indulging in even the poor consolation of a *tu quoque*. The suggestion that all the psychology we need to take account of can be put behind the demand curve does not help us very much in the many

problems in which we wish to split "the" demand curve into component curves *with psychological differentia*.)

VI. Economists and others sometimes speak of the relationship between economics and ethics when they mean the relationship between economics and ethical valuations. Professor Mises makes the clearest of all possible distinctions between the two, the first merely a matter of the convenient division of territory between two sciences, the second a much more fundamental division between scientific and philosophic verity.

Professor Mises is completely uncompromising on the general issue that a science is not a science unless it is free from philosophical prejudices, whether of an ethical, an æsthetic, or any other nature. (A proposition which is often almost incredibly confused with the proposition that a scientist is not a scientist unless *he* is free from philosophical prejudices.) But he is equally uncompromisingly hostile to the assertion that, because of this, it is impossible for a science to provide rules for action—as if any science was worth having that was not related to an art, and as if economic theory in particular did not find its sole justification in the extremely practical guidance provided by social economics. Professor Mises shows that even the use of such unashamedly "ethical" words as "beneficial" or "injurious" may be perfectly "scientific" in reference to policies which are bound to fail *whatever their object*—policies of which recent history has unfortunately afforded only too many examples. (See, in particular, pp. 34-49. It is perhaps worth noting that as the concept of the scope of economics has widened from the point of view of the merchant dealing in goods to that of the consumer choosing between alternative experiences, so also the number of possible economic ends about which differences of opinion might exist even among men of good sense and good will has increased, and to a much greater extent. The balancing processes involved in the concept of an increased national dividend of goods, or even of goods and services, are of an absurdly simple order in comparison with the task of deciding between the rival claims of such "goods" as leisure, security, opportunity to work, and the like. This consideration would seem greatly to limit the validity of the argument on pp. 34 f. of the *Grundprobleme*.)

VII. As may be clear already, Professor Mises' treatment of the data of economics is rather incidental than essential to his main argument. Thus, it does not fall within his present province to deal with certain other relationships that a comprehensive positive study of the methodology of economics would embrace. This is most noticeable with regard to the biological and ethnological data upon which economics is likely to draw to an increasing extent;¹ and this in its turn has some bearings upon

¹ It seems fairly clear that the traditional five-fold division of the data of economics is asymmetrical and, much worse, illogical and unhelpful. It amounts to nothing but a fourfold expansion of one term of the primitive supply-and-demand formula. What seems to be wanted is at least something that will bring into prominence the pre-eminent significance of the conclusions of biology, psychology, and law and politics in this connection.

Professor Mises' discussion of *Datenänderungen*, in which readers of *Nation, Staat, und Wirtschaft* will be disappointed to find no reference to the scope and method of the population problem. It is possible, however, that such excursions might have blurred the sharpness of an argument which, in conjunction with Professor Mises' analysis of the economic principle, should be sufficient to set at least two of the most pressing current problems on the right lines—the problem of advertising and the problem of frictions and indeterminateness. (In so far as advertising has the effect of transforming scales of valuations, its effect is no more “productive” than the fall of a shower of meteorites is productive, *given the usual definition of the data of economics*. This means a serious limitation of the theory of costs—serious, that is, in the field of imperfect competition, which is now fairly widely recognised as the only interesting field of speculation in at least Applied and Social Economics. On the connection between the definition of data and the nature of “frictions,” see especially pp. 152-4.)

VIII. The attitude of the *Grundprobleme* is largely destructive and “negative.” That is not the fault of Professor Mises, any more than weeding is a job invented by gardeners for their own amusement. To say that it whets the appetite for the more comprehensive positive work to which one dares to hope it is designed as prolegomena is to imply how well it performs the task which it attempts. If we escape the Dark Age which some of the more eminent and pessimistic among us foretell, this is a book which will be of great service, not only to the cause of economics, but to the whole cause of truth.

H. E. BATSON.

De l'Utilité et de sa mesure. Par JULES DUPUIT. Écrits choisis et republiés par Mario de Bernardi. (Turin. La Riforma Sociale.)

Of all great economists, Dupuit must have been one of the most unfortunate in the manner of publication of his work. It has long been realised that he deserves a place with Cournot and Gossen among the most important forerunners of the modern theory of exchange value; but so long as his work remained hidden away in ancient and dusty volumes of the *Annales des ponts et chaussées*, his readers must have been few and far between. These articles, together with a few contributions to other publications, have now been reprinted with great care in this elegant volume.

Although Dupuit's work cannot compare with Cournot's for subtlety of analysis or range of problems treated, he did examine those subjective factors lying behind the demand curve which Cournot neglected. Like Cournot, he was attracted by problems of monopoly; but here again his work is complementary. He came to utility from public utilities; the problem which most concerned him was that which arose in his own engineering experience, the social significance of discriminating charging. In order to deal with this question he was led to invent the concept of consumers' surplus. His ideas on consumers' surplus are crude, but in

spite, or perhaps indeed because of, their crudity, they repay study. For one cannot help feeling that a great many of the criticisms which have been made of Marshall's consumers' surplus doctrine, are valid enough against Dupuit, but are not valid against Marshall. (The earliest of such criticisms, Walras' criticism of Dupuit, is quoted in the introduction to this book.) It would be generally agreed that the gain, in money terms, which accrues to the purchaser of tea, from his being able to buy it at so much per pound, can be most satisfactorily measured by the difference between what he actually pays and what he would be prepared to pay for the same quantity of tea, if he were only confronted with the choice of having that quantity or no tea at all. If the marginal utility of money is constant, this difference can be represented by the area under the demand curve; but the equation stands or falls with that condition. This is the point that Dupuit, and also some of Marshall's critics, failed to observe.

Reading these essays in so pleasantly readable a form, one is impressed by the excellence of the writing. It was not obscurity which prevented Dupuit from revolutionising economics. If only he had not hidden his light under a bushel, Jevons might have found himself twenty years out of date.

J. R. HICKS.

A Critical Dissertation on the Nature, Measures and Causes of Value, chiefly in reference to the writings of Mr. Ricardo and his followers. (1825.) By SAMUEL BAILEY. No. 7 of the Series of Reprints of Scarce Tracts in Economics and Political Science. London School of Economics. 1931. xxviii + 258 pp. 7s. 6d.

If we neglect, for the moment, all questions of historical interest, such as a book of this age and description is bound to contain, there appear two outstanding reasons why Bailey's work deserves the special attention of contemporary economists.

The first lies in the originality of his methodological procedure—very pleasing to the modern student—which might best be described as a rational and systematic criticism of concepts, or, to use an expression which is gaining currency, as “rationalising” (*rationale Nachkonstruktion*). In this connection all serious students of economic theory can learn much from Bailey, for his insistence on clear, precise definition, and on a cautious, consistent use of terms, is essential to all branches of economic theory. The precepts of economic methodology would cease to be, in the main, mere empty talk if there had been a wider and stricter adherence to the method which he set out and tested critically on such a difficult subject; furthermore, much unnecessary and fruitless controversy which has found its origin in an insufficient clarity of definition would not have appeared, or would soon have come to an end. Moreover, if we consider that Bailey does not put forward these principles as mere isolated rules—in which case their value would be somewhat reduced—but incorporates them in his entire work, we can expect with some certainty that this part of the book

will be regarded as a meritorious and valued contribution by all to whom clear and active thought is a pleasure.

The second reason for the claim of this book to the interest of a large circle of economists lies in the fact that Bailey has clearly grasped, and has set out the consequences of, the relativity and plurality of economic value, i.e. the objective exchange value of commodities (for he is concerned with exchange value alone). It is much to be regretted that the development of the theory of value—in all its branches—has not been more influenced by the proposition, simple enough in itself, that the objective exchange values of a commodity are to be found in the other commodities for which it can be exchanged (and not in some different inherent quality). Many fruitless inquiries such as those concerning the measurability of exchange value and the objective exchange value (*innere objektive Tauschwert*) of money would have been nipped in the bud. Even now, more than a century after the publication of Bailey's work, we can but hope that this new edition will lead to a disappearance of these irrational disquisitions which depend upon a qualitative or monist conception of the nature of exchange value. When we consider how economic literature from all sources transgresses in this direction we can hardly accuse Bailey of unnecessary pedantry when he repeats in chapter after chapter (1) that a complete description of exchange value must be expressed thus: the value of A in B is x ; (2) that it follows immediately from this that the value of

B in A is $\frac{1}{x}$; (3) that where there is a close system of exchange embracing

n commodities, each commodity has $n - 1$ exchange values, and (4) that all shorter statements must normally be expanded if mistakes and inaccuracies are to be avoided. Anyone who reads this book is assured against the danger of diverging from the strictly relative and plural character of exchange value—a danger which is always present owing to the leanings of modern thought towards qualitative and monistic conceptions—and he will then be in a position to embark upon such work as the positive construction of a theory of Index Numbers. Up to this point, therefore, the book brings us right to the threshold of the questions with which current monetary theory is concerned.

On the other hand, of course, it is to this threshold *alone* that we are brought, where the problems only begin to appear, and we have little indication of more recent questions, to say nothing of their solution. In particular, Bailey fails to see that the problem of the measurement of value, i.e. in this connection the measurement of the value of money (a problem particularly relevant for us), does not lie in the comparison of two commodities in their exchange relation with a third but in the estimation of their indirect relations with many commodities. He does not see, therefore, that herein lies the "estimation of value" (in his own words) as distinct from the "measurement of value." It is, perhaps, too much

to expect a work which appeared a hundred and ten years ago to be up to date in this respect.

At this point, however, our interest turns more towards the history of economic theory, which in emphasising the present worth of the book, we have kept in the background of this review. And from this point of view much attention is merited by such an early critic of the classical theories of labour and costs and forerunner of subjective-value theory—though not on grounds of historical interest alone.¹

It would be an interesting question how far Bailey's exposition of the doctrine of subjective value has sufficed to lead him in the right direction, and at what points deficiencies have appeared. Chapter V, "On Comparing Commodities at Different Periods," reveals an example of the latter, when Bailey attempts to show that any *intertemporal* comparison of the value of a commodity must be meaningless. This attempt, falsely grounded as it is, is clearly due to the fact that Bailey did not recognise the essence of subjective value as that of an index of degree in the subjective economic scale, nor its fundamental relation to objective value as clearly as he conceived the latter itself. He was quite correct in his statement: "We cannot say that a pair of stockings in James the First's reign would exchange for six pair in our own day; we therefore cannot say, that a pair in James the First's reign was equal in value to six pair now, without reference to some other article"; but only because the time-extension of economic plans, particularly those connected with credit, does not cover centuries. On the other hand, in all cases where the periods in question fall within the scope of one plan, *intertemporal* comparison of value is not only possible but is essential to the rationality of this plan. Another noticeable example of Bailey's failure to recognise completely the fundamental relationship of objective exchange value and subjective value is his affirmation of the unqualified equality in importance of all exchange values of a commodity. We will not embark, however, upon any further discussions of historical interest such as those which are directed towards the classical theory of value.

It is sufficient to say that, on the one hand, for those who are interested in this particular subject Bailey's work offers a very profitable field, while on the other hand those who are less concerned with the history of theory can easily recognise and pass over irrelevant passages.

In concluding with a reference to his general method we must pay tribute to the remarkable clarity of Bailey's reasoning and style. Even the somewhat ponderous manner—perhaps a little heavy for modern taste—in which he frequently indulges, appears at most as a certain diffuseness, and not as dull and tedious verbiage.

We are greatly indebted to the London School of Economics for furnishing us with a new edition of this rare book, which should be in the library of every economist.

KARL BODE (Geneva).

¹ It will be seen that, even in this connection, particularly in non-English literature, there is much to be desired, for Bailey's name does not appear in the *Handwörterbuch der Staatswissenschaften*.

The Graphic Representation of the Laws of Supply and Demand, and other Essays on Political Economy. By FLEEMING JENKIN. No. 9 in Series of Reprints of Scarce Tracts in Economic and Political Science. London, 1931. 154 pp. 6s.

The Co-ordination of the Laws of Distribution. By PHILIP H. WICKSTEED. No. 12 in Series of Reprints of Scarce Tracts in Economic and Political Science. London, 1932. 56 pp. 5s.

Ueber Wert, Kapital und Rente nach den neueren nationalökonomischen Theorien. By KNUT WICKSELL. No. 15 in Series of Reprints of Scarce Tracts in Economics and Political Science. London, 1933. 143 pp. 6s.

(All published by the London School of Economics and Political Science.)

Of Jenkin's five essays¹ reproduced in this volume, that on *The Graphic Representation of the Laws of Supply and Demand* (published 1870) will claim the greatest interest. It contains a very suggestive graphic analysis of demand and supply which even to-day deserves attention, particularly for teaching purposes.

Of the other essays, the one on "Trade Unions: How far legitimate?" may be specially mentioned. Here Jenkin proposes, first, to discuss those principles of political economy which affect trade unions; secondly, to consider the right to combine; thirdly, to describe unions as they exist; and finally, to examine what legislative action is required. The reader will find ideas which are far in advance of the period in which they were expressed. In particular, Jenkin's Kritik of the Wage Fund Theory is an achievement which for 1868 is very remarkable.

* * *

As is well known, Wicksteed's little book, published in 1894, contains his attempt to demonstrate what is now known as "the second theorem of the Marginal Productivity Theory": "Under ordinary conditions of competitive industry it is sensibly or approximately true that if every factor of production draws a remuneration determined by its marginal efficiency or significance, the whole product will be exactly distributed." An endless discussion, which must be regarded as one of the curiosities of our science, has been started by this proposition, and is apparently still not concluded. It is surprising that so much effort has been devoted to the discussion of a theorem which to-day is only historically interesting. Modern investigations in the field of the theory of production have shown quite clearly that in modern theory there is no room for the Wicksteedian theorem in the sense which *he* attached to it. In an *altogether different* sense, however, the Wicksteedian relationship:

$$A. \frac{\partial P}{\partial A} + B. \frac{\partial P}{\partial B} + \dots = P.$$

¹ "Trade Unions: How far legitimate?"; "The Graphic Representation of the Laws of Supply and Demand, and their application to labour"; "On the principles which regulate the incidence of taxes"; "The time-labour system"; "Is one man's gain the other man's loss?"

is of fundamental importance for the construction of the modern theory of production. If $X = \phi(v_1, v_2, \dots, v_n)$ denotes that part of the production function of an enterprise which contains the compensatory factors, and if Σ represents the "degree of productivity" (Ergiebigkeitsgrad)¹ of the combination $v_1, v_2, \dots, v_n$, then, as can be easily shown,

$$v_1 \frac{\partial \phi}{\partial v_1} + \dots + v_n \frac{\partial \phi}{\partial v_n} = \Sigma X (*)$$

is always true. However, the proposition expressed by this relationship is of a *purely technical nature*. Further, it is important to notice that it applies only to the group of compensatory factors. The limitational factors (the factors which stand in a reversible unique relationship to the amount produced) which are of no importance for the economic organisation of production, do not enter this equation. In the case where Σ is constant and equal to 1 for all the combinations of $v_1, \dots, v_n$, that is, where the production function is homogeneous of the first degree, the equation (*) becomes *formally* identical with the Wicksteedian equation, but has still a *completely different* meaning. The equation (*), which I have called in my "Theory of Production" the Wicksell-Johnson theorem, is fundamental for the theory of production if interpreted in the purely technical sense. Its fundamental importance lies in the fact that it enables us to derive the proposition that, on the assumption of constant factor prices, total costs of the compensatory factors are equal to the product of the "degree of productivity," quantity of product and marginal cost. If, then, we know how the "degree of productivity" varies with the contents of the combination $v_1 \dots v_n$, we are able at once to deduce the shape of the individual cost curve for the group of the compensatory factors. This is the only role which the equation (*) plays in the modern theory of production.

* * *

"I remember as if it had been yesterday," says Wicksell in one of his articles,² "a day twenty-five years ago when I saw in the window of a bookseller in Berlin for the first time the title *Positive Theorie des Kapitals* by Eugen v. Böhm-Bawerk. I was already acquainted at that time with the *History and Criticism of the Theories of Interest* by the same author, and I had studied in particular with the greatest admiration his extraordinarily lucid and convincing exposition of the Marginal Utility Theory in *Conrads Jahrbücher* of 1886. I obtained a copy and was soon deep in the study of that work. A great deal of it I understood only very incompletely, as is shown to-day by the marginal footnotes I made at that time. In particular I understood the last section on the height of the rate of interest only very partially, and learnt to appreciate it only much

¹ For the concept of "degree of productivity," see my *Theorie der Produktion* (Vienna, 1934).

² Wicksell, "Lexis och Böhm-Bawerk," *Ekonomisk Tidskrift*, 1914, pp. 322-3.

later. Nevertheless, this work was a revelation to me. I had before tried independently, but with little success, to penetrate the phenomenon of interest and the problem of economic distribution, as complicated by the existence of capital in addition to labour and land. Even the ingenious suggestions in Jevons' *Theory of Political Economy* had not helped me very far, although they contained the same fundamental ideas in a somewhat too aphoristic form. It was only then that I saw how, before my own eyes, the keystone was added to the structure of doctrines which the economists of Ricardo's days had begun, but had not been able to take beyond the early stages. Apart from this, they had had to be satisfied with the collection of material for the further construction."

To this intensive study of the work of Böhm-Bawerk which began in 1889 we owe the brilliant second chapter of the present volume on "The New Theory of Capital." To this day there is no other analysis of Böhm's "Theory of Capital" which brings out its essential features with the same clearness as that of Wicksell. Even the later discussion in his *Lectures* of the role of the time element in production does not achieve, at many points, the vivid power of the first publication, and in some respects even falls short of that earlier treatment. Anybody who wants to penetrate into the real essence of Böhm's theory of capital will therefore have to study, in addition to Böhm's own work and Wicksell's *Vorlesungen*, the present unique study. At the present time, when the importance of the role of time in the production process has once again become a focus of theoretical interest, particular importance attaches to this study. "Before Böhm," says Wicksell in the article quoted above, "everything was chaos in the theory of capital." Present conditions in this field are no less chaotic, and it is still altogether uncertain how the reconstruction of the theory of time-production, which occupies at present so many eminent economists in all countries, will ultimately appear. Perhaps it will seem that Wicksell's opinion about the Walras theory of capital was too severe; perhaps it may also become necessary to realise that the concept of the period of production as used by Böhm and Wicksell will have to be considerably modified, or discarded as altogether useless. At present, however, while the discussion is still in progress, it is impossible to make definite predictions. The only thing which is certain is that the final construction will contain elements which Wicksell used in the theory of capital which he developed in the present volume.

The first section of the volume, "The New Theory of Value," has not the same topical importance as the second, though as it contains the main propositions of the new theory of value on the lines of Walras in an easily intelligible form, it is still well worth reading. I know of no really modern exposition which provides such an easy introduction to the mathematical theory of value and price as developed by Jevons and Walras. Nobody who wants to read Walras' *Elements* should neglect first to read this section of Wicksell's book. The treatment of the exchange of three or more commodities deserves special mention, since

it elaborates with great skill the description and analysis of the phenomenon of indirect exchange arising here for the first time.

ERICH SCHNEIDER.

Collectivist Economic Planning. By F. A. VON HAYEK AND OTHERS. Routledge. 1935. pp. v, 293. 10s. 6d.

Economic Planning in Soviet Russia. By BORIS BRUTZKUS. Routledge. 1935. 234 pp. 10s. 6d.

Five eminent economists from London, Amsterdam, Vienna, Würzburg and Padua should compose a formidable army. It is, therefore, the more surprising that the authors of this critical study of collectivist planning should have succeeded in saying so little. Apart from the elaborate intricacies of Professor Barone's mathematical appendix, the combined contribution of all five seems hardly to amount to more than the statement that socialised planning is "irrational" because it is incompatible with the free market determination of prices. A good deal of space is given to showing that the determination of costs in terms of labour values would be no substitute for the price mechanism of the market economy; but it is difficult to feel that economic thought is materially advanced by yet another exposure of the labour theory of value, even in the hands of Professor von Mises. Again, one wonders why it was thought worth while to reprint Professor Pierson's article on the *Problem of Value in the Socialist Community*, unless for its historical interest as one of the first papers in which the problem was raised and the answer, indicated above, given. Professor Pierson elaborately describes the familiar methods by which values are determined, first in international and then in domestic trade, and shows that the existing processes would not be operative under conditions of socialised planning. Much of the argument is entirely unexceptionable, but it all seems distressingly elementary.

Professor Hayek alone attempts to carry the discussion beyond its first, and relatively, superficial stage. His opening paper, on the *Nature and History of the Problem*, contains a stimulating digression on the decline of economic authority over the public mind, and his concluding survey on the *Present State of the Debate* discusses, with the penetration which we are entitled to expect, the economic implications of the pseudo-competition now favoured by sundry socialists. In this section at least there is material that will be new to many English-speaking socialist economists.

But when all is said, the socialist has an obvious and effective reply to the theoretically very damaging criticism which the volume contains. It is indeed apparent that no automatic mode of applying the economic principle in a collectivist state has yet been discovered. But have we any really reliable measure of economic calculation in *any* kind of society? The justification for using market prices as an index of costs and satisfactions is, as has so often been pointed out, identification of desire with effective demand. This identification is implied throughout, but it is significant that each writer in turn glosses over it extraordinarily lightly.

And yet, after all, it is quite fundamental. It is just the reason why it is possible to be absolutely convinced in the study by the theoretical arguments of this book, and yet, immediately one steps out into the street, to reject as fantastic its conclusion that in existing society, needs are satisfied (State interference apart) in order of relative urgency.

And, besides, we are entitled to ask that the authors should apply their own analysis with the ruthless consistency with which they have worked it out. At one or two points, at least, it hardly appears that they have done so. Professor Hayek, for example, is personally convinced (p. 205) that the extent and forms of Russian investment under the first five-year plan were not such as conformed to an optimal distribution of resources. Many would agree. But how does Professor Hayek know that it is so, believing, as he apparently does, that only the market mechanism can reveal the optimum point to which any economic activity should be carried? In passing a judgment of this kind, is he not setting up an arbitrary *a priori* standard, just as much as the planner who says that the output of luxury goods is carried beyond the truly optimal point in a country like our own?

One could have wished, also, that such unflinching advocates of the rule of the price mechanism as the authors of this volume had given some space to discussion of the problem whether there are any spheres of social life at all which they would exempt from its authority. There is nothing in their arguments which would not apparently justify the conclusion that the provision of medical services, defence and education ought to be left to the initiative of private producers acting on strictly commercial principles in a free market. It is possible that the reader is intended to draw this conclusion; but although Professor Hayek does indeed make it clear that the contemporary forms of capitalism are so "impure" as to deserve the title of mere "interventionist chaos," he does not explicitly state whether such public services as those mentioned above are to be included among the "impurities." The reader would perhaps be better able to judge of the practical value of the principle that the price mechanism is the sole guide to rational action if he understood clearly just how far this takes him.

In his introduction to Professor Brutzkus' book, Professor Hayek unhesitatingly expresses the view that this should be placed in the "very first rank of the really scientific literature on present-day Russia." When Professor Hayek speaks in these terms, great expectations are aroused. In this instance, however, they can hardly be said to be satisfied. Professor Brutzkus is clearly a man of great sincerity and courage. Indeed, the most striking thing about the first part of his book, which consists of a critical examination of the theoretical basis of socialism, is that he should have had the courage to publish it in Russia in 1921, and that its publication should have been permitted in that country at the time, even though this brought early retribution on the author in the shape of imprisonment and exile. The work itself treats the subject in a quite elementary form, along substantially the same lines as the essays in the companion volume.

Once again we have an exposure of the labour theory of value; but this, obviously, must have had a significance for readers and audiences in Soviet Russia out of all proportion to its value to English economists. Intermixed with the theoretical material are also sundry general criticisms of socialism, as, for example, on the ground of its "immense indolence and conservatism" (p. 69). (Incidentally, this reads a little quaintly beside Professor Hayek's careful explanation, in the companion volume, that the Russians' passion for technical innovation is not to be counted to them for economic righteousness.)

The second part of the book is occupied with a descriptive and historical survey of the results of planning in the Soviet Union. The conclusions are, in general, very unfavourable, the record being one long tale of mistakes and waste. The author has been exiled from the country for the past twelve years so that he necessarily relies wholly on documentary evidence. It is to be hoped that this externality has not led him to go so far astray in his judgment of conditions in post-revolutionary Russia as he does in reference to the working-class of our own country. The latter he seems to regard as enjoying a standard of living in which the possession of a Ford car is not merely possible, but probable. When, however, we read that the past records of the Russian intelligentsia show that they have "ever been devoted to the interests of the suffering masses of the people," it must be confessed that we begin to doubt whether the author's own grievous sufferings may not at some points have distorted his view, and undermined his regard for precision of statement; and whether, so far as scientific value is concerned, some of the growing number of careful and critical studies by foreign journalists and workers who have resided in Russia during the actual period of planning may not claim at least as high a place as Professor Brutzkus' observations from outside.

BARBARA WOOTTON.

Economic and Social Investigations in Manchester, 1833-1933. A Centenary History of the Manchester Statistical Society. By T. S. ASHTON. With an Introduction by the Rt. Hon. the Earl of Crawford and Balcarres. P. S. King & Son, 1934. xii, 179 pp.

The early 'thirties of the last century are noticeable in the history of the scientific study of social phenomena for the rapid growth (or revival) of interest in the use of statistical methods of investigation. Theoretical economists turned to the compilation of statistical information, statistical offices were founded and statistical societies formed. The oldest among the latter, that of Saxony, founded in 1830, has not survived. But three years later first Mexico and then Manchester followed suit, and early in the following year the Statistical Society of London (now the Royal Statistical Society) joined the group, so that in the course of the past two years the three oldest surviving statistical societies have been able to celebrate their centenaries. If the Manchester Society is not the most

famous of the three, it is certainly not the least interesting, and the reader of the present centenary history will be grateful to Mr. Ashton for presenting the results of his researches in such a very readable and attractive form. It is not often realised, certainly not outside this country, how important a role Manchester has played in English intellectual life, particularly in so far as social problems are concerned, and even less is understood the direction in which the influences coming from Manchester have been working. The impression commonly conveyed by the term "Manchester School" is certainly a most distorted picture of the attitude towards the social problems of their day taken by the members of this Society, who included Richard Cobden.

The earlier years of the life of the Society saw changes in the social structure of the industrial north, compared to which the much-heralded changes of our own age appear insignificant. The growth of "industrialism" led to the development of industrial towns of a magnitude till then unknown, and raised communal problems which were only gradually recognised. The early investigations carried out with scanty means but great enthusiasm by the small group of members of the Society have probably done more to attract attention to the new problems than the efforts of any similar body. The results of the investigation on mortality, on the conditions of railway labourers, on public health, and later, on education, did much to set a movement afoot whose influence extended far beyond Manchester, and which probably affected similar movements in the whole industrial world.

The theoretical economist will be particularly grateful to Mr. Ashton for the interesting chapter devoted to the discussions of banking and the trade cycle in the 'fifties. The papers of William Langton and T. H. Williams, from which abstracts are given, are certainly remarkable for their time. It would have been interesting to inquire to what extent their views have been influenced by James Wilson, the first editor of the *Economist*, who was probably the earliest to develop similar ideas at some length, and who was also related to one of the founders of the Society by marriage ties. If it were really true that W. S. Jevons, an active member of the Society at a later date, was influenced by Langton and Williams in his views of the trade cycle, which probably led him to his study of capital, considerable importance would attach to these forgotten contributions.

The list of papers read to the Society, which is appended to the volume, will in many other respects serve as a useful guide to interesting studies on various problems. The traditional protest of the reviewer against the lack of an index is, perhaps, more than usually justified in the case of an historical study of this sort. But although it would have added to the usefulness of the volume, this small blemish should not weigh seriously against the true appreciation of this really valuable history.

F. A. VON HAYEK.

The Annals of the Royal Statistical Society. London, 1934. 8vo. 308 pp., with eight portraits.

The Royal Statistical Society, born in 1834, celebrated its hundredth anniversary in becoming style last year. The International Institute of Statistics obligingly held its periodical congress in London in order to join in the centenary gatherings, and its members, as guests of the Society, lent added distinction to the receptions hospitably arranged by His Majesty's Government, the Lord Mayor of London, and the Chairman of the London County Council. The Prince Consort, himself a pupil of the great statistician Quetelet, became Patron of the Society in 1840 and read a remarkable paper to it, which was printed in the *Journal* for 1860. His great-grandson, the Prince of Wales, fittingly opened the ceremonies of last year with his accustomed felicity. Finally, the *Annals* of the Society (1834-1934) were issued to crown the commemoration of a hundred years of well-spent life.

The *Annals* were compiled by Dr. James Bonar and Mr. H. W. Macrosty. It goes without saying that they are well presented and full of interest. The names of the leading statesmen, economists and statisticians of the century appear in the history, which is embellished with eight excellent portraits, of Malthus, Babbage, Farr, Newmarch and Guy (grouped with a third unnamed celebrity), Jevons, Booth, Giffen and Edgeworth. The guess may be hazarded that the unnamed figure is that of Sir Rawson Rawson, the first editor of the Society's *Journal* and one of its honorary secretaries. This portrait was probably taken in 1873, when Guy became President of the Society. Newmarch had relinquished the chair in 1871. My recollection of Rawson dates from some twenty years later, when his personal appearance had probably much changed, but there are many points of resemblance.

The Manchester Statistical Society, founded in 1833, shares with the Royal Statistical Society the honour of contributing to the great advance made in the study of statistics during the last hundred years. Marshall once observed to me that economic history before the nineteenth century is almost valueless owing to the absence of trustworthy statistics. This was assuredly not an understatement. None the less it emphasises the great debt which economics owes to the labours of the statisticians. In its annual report for 1837-8 the Statistical Society says that "the spirit of the present age has an evident tendency to confront the figures of speech with the figures of arithmetic." The tendency is still too often in abeyance. "Starvation in the midst of plenty" will not bear confrontation with the official figures of the annual deaths from starvation, or the estimates of the national dividend and the margin of visible stocks of the means of subsistence.

Age has not withered the Royal Statistical Society. Its vitality is shown not only by notable advances in technique but by its overleaping the bounds jealously set up by its founders. Its excursions into economics and into matters of opinion are notably exemplified by its recent discussion of monetary theory, opened by Professor J. H. Jones and followed

by many speakers, who eschewed statistics as rigidly as the opener. The merited award of a gold medal to the opener is proof of the thin partition between economics and statistics in the present day. The use of economics lies in its application, to which statistics lend indispensable aid, and every economist will therefore join in the hope that the Royal Statistical Society may long live and flourish.

HENRY HIGGS.

German Commercial Policy. By WILHELM RÖPKE. Publications of the Graduate Institute of International Studies. Number 12. Longmans Green & Co. Ltd. 1934.

Dr. Röpke's little book, a reprint of lectures given in the Graduate Institute of International Studies at Geneva in February 1934, comprises within eighty-four pages a concise and critical analysis of German commercial policy. It delineates in admirable brevity (almost in tabloid form) the essential features of this policy. And as the author fortunately combines a power for abstract reasoning with a happy grasp of facts, seen through a lively temperament, he provides good reading as well as sound instruction. In the first three chapters he is trying to establish a rhythmical relation between protectionist and free trade tendencies in Germany by connecting them with the trade cycle. The fourth chapter deals with the problem of "Autarchy." It is rather short and not as exhaustive as it might easily be, for the author returns to the discussion of this problem in the last chapter on commercial treaties. Chapter three gives a lucid description of the forces, methods and consequences of industrial protection. Chapters six and seven deal with the protection of agriculture—the first chapter describing the agrarian structure and the agrarian struggle in Germany, whilst the latter chapter is devoted to the technique of agricultural protection. The close connection existing between seemingly opposed groups, who sink their differences by pooling the profits other groups are made to yield to them, is very well described in these pages. The last chapter is not quite rightly entitled "Commercial Treaty Problems." Most of its space is given up to a discussion of the particular nature of the German crisis, to the monetary problems arising from it, and the effects of exchange control on trade policies. Dr. Röpke is a believer in the efficacy of currency depreciation. He makes rather light of the repercussions of international competitive currency depreciation on trade nor does he answer the question how more or less universal simultaneous and equal currency depreciation would affect the international commercial situation.

Dr. Röpke boldly asserts his economic liberalism, and rightly claims that the consequences of Germany's commercial policy may have demonstrated the weakness of liberalism in Germany, but not the wisdom of protection. Notwithstanding his strong theoretical convictions, his liberalism is of a very practical sort. He has convinced himself that in a world made top-heavy by all sorts of mutually exclusive contradictory measures of intervention no pure system of non-intervention can exist.

He rightly insists upon the necessity of evolving a severely critical system of intervention in order to enable statesmen to renounce the habitual methods of intervention, as they are either unable to produce the desired results or, if they do so, are creating worse problems than those settled by their application. Anybody desirous to get a concise view of German commercial policy up to very nearly the present day will get all he wants from Dr. Röpke, essential facts as well as guidance in interpreting them properly.

M. BONN.

International Comparisons of Cost of Living. International Labour Office, Geneva. (Studies and Reports, Series N, No. 20.) 1934. viii + 146 pp. 5s.

The statistical section of the International Labour Office has been engaged, for a number of years, on the problem of the construction of international cost-of-living index numbers, a problem which is as fascinating as it is intricate. The present study describes the position that has been attained as regards food costs and rents, the two most important items of family expenditure. The study considers many theoretical problems of an economic or of a statistical nature and it encounters numerous serious difficulties of a practical nature. The theoretical analysis has now been taken beyond the point where it can be profitably applied to existing budget and price data. This is, of course, highly desirable if we are to see exactly how, and in what respects, the data must be improved and extended for further applications.

Dr. Hans Staehle is responsible for the first part of the study, the section on the international comparison of food costs. His problem is to compare the costs of food budgets which give the same level of satisfaction to the families considered at the two times or in the two places compared. The food expenditure of a family depends on two general factors, the level of food prices and the income or standard of living habitual to the family. The problem is to eliminate the second factor and to obtain indexes of food prices for families with the same standard of living.

The main difficulty arises since the standard of living and the consumption habits of families vary widely from time to time and from place to place. How can the effect of this variation be eliminated in order to isolate the effect of food prices? An answer to this question is urgently needed in the case of geographical, as opposed to temporal, comparisons, and Dr. Staehle's work stands or falls by the answer he is able to provide. It has been the practice, in the past, to select some arbitrary set of consumed quantities, some standard budget or "basket of provisions," for all the times or places covered by the indexes, and to relate the costs of the budget at the various ruling prices. This practice avoids, rather than answers, the fundamental question. Dr. Staehle attempts to overcome the difficulties by constructing "regions of good comparability" amongst the towns for which comparisons of food costs are required. Instead of imposing an arbitrary budget upon all towns, the first step is to group the

towns into regions of towns with similar consumption habits, and then to connect the regions by selecting "centre" towns, one in each region, again with similar consumption habits. The food costs in each town of one region are thus compared directly, by means of standard budgets, with the food costs in the centre town. Further, the comparison of food costs in the centre towns of the various regions provides an indirect comparison between any two towns belonging to different regions. All turns, therefore, on the criterion of "good comparability" between towns of one region and between the various centre towns. Dr. Staehle analyses the criterion with admirable thoroughness and considerable success, both from the economic and from the statistical points of view. The result, on the practical side, is the calculation of tentative indexes of food costs for certain European towns for which budget and price data are available. These indexes are certainly superior to the old indexes calculated on the basis of a fixed standard budget, and they can be improved and extended as further and less imperfect information becomes available.

One further difficulty and limitation can be noticed. Even at one time and place, the standard of living and the consumption habits of families vary from one income group to another and from one economic or social class to another. In comparing food costs at two times or in two places, therefore, it is essential that the income groups, or the economic classes, in the two situations should be arranged in pairs according to their standard of living, and that the index of food costs should be given only for one stated pair of "equivalent" income groups or classes. An index can be calculated for each pair of equivalent income groups, and it varies as the selection of the pair varies. There is, for example, one food price index for the comparison between Oslo and Stockholm for families of the unskilled working class, and a completely different index, based on different weights, for families of the clerical class. The difficulty is to pair off the income groups which are equivalent in the two towns, and, in the present work, there is little more than a passing reference (p. 26) to Dr. Staehle's analysis of the problem. But it is clearly a problem which must be considered most carefully in the future work of extending and improving the calculation of the indexes. In any case, having obtained the equivalent income groups, the particular group to which a given index refers must always be noted. It is inappropriate, for example, to use a working-class index of food costs in the construction of a sliding scale for the salaries of Civil Servants.

The second part of the study, on the international comparison of rents, is by Mr. R. Guye, and here comparatively neglected fields of statistical inquiry are opened up. The general problem of the construction of indexes for rent expenditure can be tackled on the lines indicated in the case of food expenditure. Tests of "good comparability" of housing needs and habits in various towns can be developed, the towns can be grouped into regions according to similar housing "consumption," and indexes can be constructed for the direct comparison of rents in towns of

one region and for the indirect comparison of rents in towns of different regions. The weights in the indexes are the various "consumed" quantities of housing units of various sizes in the towns considered. The problem, however, presents a number of theoretical and practical difficulties not encountered in the food case. Consumption habits as regards rent are less easily defined quantitatively, and we have to face the fact that each family "consumes" only one housing unit as compared with the varying consumptions of the items of the food group. The theoretical development and practical applications of Mr. Guye are necessarily carried less far than those of Dr. Staehle on food costs, but they provide at least a valuable preliminary approach to the problem of rent comparisons.

There remain further problems for future consideration, notably the problems of constructing indexes for the comparison of expenditures on items such as clothing, fuel and light, and the problem of combining the separate indexes into a final index of the cost of living as a whole. Lack of appropriate data is the main difficulty to be faced here. But one of the most important results of the present study is to show that the separate indexes for food costs and rent are by no means perfectly correlated for the various towns considered and the regions of "good comparability" in the food case do not coincide with those in the rent case. The food index, therefore, cannot be used as a reliable indication of the cost of living as a whole. The position, however, is a hopeful one and we look forward to future developments of the problem on the theoretical and statistical side and to the collection, in the light of present experience, of more comprehensive and adequate budget and price data.

R. G. D. ALLEN.

Analisi di Statistica Economica. By LIBERO LENTI. Casa Editrice Aracne, Milan, 1934. 166 pp.

This book is primarily an analysis of the materials available for the study of the Italian Konjunktur, but it is of more than local importance. In connection with nearly every one of the topics treated there is a well-informed discussion of the general methods of attacking the measurement of the relevant phenomena, based on the procedure in other countries and on the suitability in application to Italian statistics. We have thus an account of the formation of index-numbers that form the series used in Konjunktur publications with special reference to Italy: Securities bearing fixed or variable interest, the volume of Stock Exchange transactions (not available in England), Bank Clearings, Discount rates, Investment, Wholesale and Retail prices and Cost of Living, Railway Traffic, Employment and Production, Building activity, and Bankruptcies. A chapter is devoted to each of these eleven subjects, and with an introductory chapter these complete the book.

It is noticeable that there is no study of external trade, nor of shipping, nor of transport by road. We regret to find that the author is apparently

unaware of the Memoranda or even of the Bulletins issued by the London and Cambridge Economic Service.

Perhaps the most interesting chapter is that on Employment, in which is to be found also an account of wages and an estimate of the change in Production. This contains statistics which need the careful study made by the author for the guidance of the foreign reader, for they are difficult to interpret, and their scope is limited in a way which would not be evident if they were quoted without explanation. There are two sets of statistics of occupation, the one coming from the *Confederazione fascista degli industriali*, the other from the *Ministerio delle corporazioni*. These are not a mere duplication, for "each has its own characteristics; characteristics which serve to explain particular elements of the complex phenomenon."¹ The first-named obtains from a large but varying number of employers data of the average number of persons occupied, the total number of hours worked in a period by all the employees, and the total sum paid in wages. These lead to a measurement of employment, and of short time; they also yield an index of wages and show seasonal changes in the various industries. On certain assumptions they can be brought into relation with output, and from them can be deduced a partial index of production. Finally, they lead to estimates in some industries of the movement of *per capita* productivity. Part of these results are based on the second group of occupational statistics named above. The observations do not, however, cover the whole field of employment, but only industrial occupations. They are also incomplete in their own field. "In practice, in fact, not all the firms respond. On this point it is useless to be under illusion. A statistical conscience is not yet formed in Italy."¹ As we might expect the figures come mainly from the large corporations. But great care is taken to preserve comparability in the working up of the results. We may in fact judge that the "statistical conscience" is very sensitive among Italian statisticians, including our author.

The reading of this book of 166 closely printed pages is not to be undertaken lightly, but it can be recommended to all those who are concerned with the technique of the working up of statistics that throw light on the industrial situation.

A. L. BOWLEY.

Sull'imposta progressiva. By LIONELLO ROSSI (in Pubblicazioni del R. Istituto Superiore di Scienze Economiche e Commerciale di Firenze N. 3. pp. 101-61). Florence. Libreria Internazionale Seeber. 1933.

Anyone who is prepared to play the game of assuming absolute utility, measurable, and comparable between persons, can pass a pleasant hour or so with Rossi in speculating upon the probable shape of utility curves, and upon allied subjects. We can suppose that the utility curve corresponding

¹ Free translation.

to the income of a person grows with the income but less than proportionately to income and that his "sensitivity" to successive increments of income decreases as the income grows. "Sensitivity" is measured by the percentage variation in total utility corresponding to a given percentage variation in income; thus it equals $1-m$, where m is the absolute value of the elasticity of the utility curve.

Bernouilli, readers will remember, assumed that proportionate additions to income make equal additions to the total utility of the recipient. Thus a jump from, say, £200 a year to £400 a year would add the same utility as a jump from £400 a year to £800 a year. Some writers have contended that this gives too slow a rate of diminution of absolute marginal utility. Rossi concludes, I think quite plausibly, that on the contrary it gives too rapid a rate of diminution, especially in the lower reaches of income.

If all we know is that utility increases with the increase of income at a decreasing rate, the principle of proportional sacrifice will lead, as Edgeworth and others have shown, to regressive taxation over certain ranges of income, if a certain formula is chosen to represent the law of diminishing marginal utility of income. Upon Rossi's assumptions, however, this principle leads to progressive taxation.

But the reader who has steeled himself to think in terms of utility has a shock waiting for him, for at this stage Rossi produces "godimenta" (enjoyment). The main object of this is to justify the exemption of minimum incomes from taxation. The godimenta of a minimum income is nil, and of an income below the minimum negative. The exemption of minimum income satisfies a collective want. Therefore the principle of proportional sacrifice, as applied to the whole income (without a minimum exemption) goes overboard.

Rossi concludes by examining some objections raised by De Viti De Marco against progressive taxation. He points out that the principle of proportional sacrifice assumes only an equal mode of decrease of utility for different persons. But this does not really solve the difficulty raised by De Viti De Marco, for the objective scale of taxation must in practice be the same for all persons. On the other hand, his proof that progressive taxation need not be self-frustrating (since as large incomes become smaller, small incomes become larger) seems valid.

Essays of this kind certainly provide intellectual exercise in the application of logic and mathematics, but it is rather disturbing to find that such an able thinker as Rossi (who has read the great work of De Viti De Marco) still bases conclusions as to what taxation ought to be, and bases them in all earnestness, upon unprovable assumptions about vague and immeasurable entities. Surely the exemption of minimum incomes could be better "justified" by the analogy between human and real capital—exemption of repairs, renewals and replacements! Surely progressive taxation could be better "justified" by arguing that richer persons are prepared to contribute a larger proportion of their incomes towards the provision of certain common services! But why make the

vain attempt to provide "proof" for what must be, ultimately, a question of opinion? If people think progressive taxation is "right," and make this judgment in full awareness of the consequences and of the alternatives open and their consequences, no pseudo-proofs are needed. Their judgments stand firmly on the foundation of their inner convictions.

F. BENHAM.

Economic Handbook of the Pacific Area. Edited by F. V. FIELD. Doubleday, Doran and Co., New York. 1934. pp. 649. (Obtainable from Allen and Unwin. 18s. net.)

The Institute of Pacific Relations is to be congratulated upon this volume. The editor and his associates have assembled a collection of facts about the Pacific countries (including the United States and the U.S.S.R.) which will be of great service to students. Most of the facts are available elsewhere, but it is a great convenience to have them in one volume. They are grouped under the following chapter headings: Population, Land Utilisation, Food Production and Consumption, Transportation, Public Finance, Capital Movements, Trade, International Mineral Products, and International Agricultural and Textile Products. The book contains several maps and charts, hundreds of statistical tables, a section on weights and measures, a bibliography, and an excellent index. The data are taken from official sources or, failing such sources, from the best available estimates.

F. BENHAM.

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Edwin Cannan: A Personal Impression

By T. E. GREGORY

I

I FIRST heard Edwin Cannan lecture in the Autumn Term of 1910. At that time, when the School was so much smaller than it is now, the whole burden of lecturing, advising students and marking their papers fell upon the Professor of Economics himself, the first assistant in what afterwards became the Economics Department not being appointed for some years after I attended the Elementary Course, which used to be given, if I remember correctly, in the old Lecture Room 31, then (apart from the Old Hall) the largest room of the kind in the building, but long since swept away in the building operations which have taken place since the war. Cannan was then already nearly fifty (it is one of the curious tricks of memory that he seemed much older than he did in post-war years): my main recollection, since I have lost what must have been exceedingly bad notes, is that of a small stocky man with a black beard, a habit of propping up a leg upon the large chair which stood upon the platform, a very difficult delivery and a habit of looking over our heads into a distant corner of the room, so that much of what he said was altogether missed by us, in both senses of the word. For he taught a kind of economics which seemed to have no relevance whatever to what passed then as "elementary" economic theory, as exemplified, for instance, by Marshall's smaller book, which was one of the "officially" recommended books for the course. What he was actually giving us, of course, was the content of what was later to be a supremely successful book—but I must be frank and admit that the first-year students of that day were not in a position to appreciate the fare that was being set before them. How any of us passed the intermediate examination I simply cannot understand, unless Cannan had charitably adopted a standard much lower than we had any idea of. Looking back, I remember

the sigh of relief with which I received my copy of the first edition of *Wealth* in the spring of 1914, having been just appointed the second assistant in the Department, my predecessor, Dr. Mabel Buer, now of the University of Reading, being promoted to take charge of the classes then being inaugurated for second- and third-year students. Here, at any rate, was something to put into the hands of students. By the time the entrants of 1910 had taken their final degree in 1913, our admiration and personal regard for Edwin Cannan were very great, but the majority of us had not chosen Economics as their "special subject." The great friend and pundit of the young undergraduate in those days was the late Professor Lilian Knowles. She managed to imply that no one had ever been known to get a "first" in Economics and that it was better to play for safety and leave Economics alone. Her efforts in diverting good students in the direction of Economic History (for she had a shrewd eye for her own subject) were greatly reinforced by a story then current—Heaven only knows if it is true—that a greatly daring student had once asked Cannan to be allowed to take Economics as a special subject, to which the reply was: "Can't you do something else?" Something of the sort probably was said: the Cannan of those days *was* rather an aloof person, or seemed so to us. It was only very gradually that we came to know him. Mrs. Knowles helped us very much. Quite frank about her own affairs, she was equally frank about things of which we had not the slightest inkling. It was from her, I am sure, that we of the generation of 1910-13 first realised that Cannan had married and that there was a young "David Ricardo Cannan" whose merits and demerits were frankly weighed against those of a young "William Cunningham Knowles." We had met neither of these two young gentlemen—it was only a very few of us who were to realise how the premature death of the former was to affect the latter course of Cannan's life. For some of us, further, a now forgotten novel of Gilbert Cannan's, then the rising hope of the younger generation of novelists, helped in the comprehension of Edwin Cannan's personality. It was—of this I am certain—the late Lt.-Colonel William Kennedy, M.C., D.Sc.(Econ.), who first drew our attention to a certain novel, *Peter Homunculus*, in which, as he asserted, Cannan was drawn to the life. In those days there existed at the School a small dining club, the Query Club as it came to be called, mainly composed of graduates

of older and other Universities, but to which some of us had the good luck to be invited. It was at one of the dinners of this club, I remember, that the whole matter was first raised by Kennedy. But what really enabled us to understand Cannan were the personal contacts established in our second- and third-year stage. The advanced Economics course in those days was divided into a running commentary upon Marshall's *Principles*—the "London exegesis on the Cambridge Bible of Economics," as it was irreverently described by one of our number—and a second course, the content of which roughly coincided with the subject-matter of the *Theories of Production and Distribution*: the extension of the latter course to cover the entire two years, with which post-war students of Cannan's are familiar, came later on. One of the students of that period has elsewhere recorded his surprise, "having only just come down from the Cambridge of that day," at Cannan's iconoclasm.¹ My recollection is that it was the outsiders from the other Universities who were the quickest to seize the point of Cannan's very pawky wit, and that it was Hugh Dalton's stentorian laughter which gave the rest of us the cue. However that may be, by the end of the two years we were all—specialists and non-specialists alike—sworn disciples, with a great contempt for superior persons, which some of us at least have never been able to shake off entirely, armed with the invaluable phrase: "Is there anything much in that?" and with the habit of puncturing the most sustained pieces of eloquence on the part of our friends by the use of the simple word "why." I doubt if any teacher of the last few decades has performed a greater service than did Cannan in all the years that he was at the School in "debunking" vague language and vaguer ideas by his use of the Socratic method. The question was put without the slightest arrogance of voice or manner: we never felt we were being "put through it" because we were young and ignorant: indeed, I doubt whether any great scholar has ever shown himself more willing and eager to encourage the slightest sign of originality on the part of his students. But the originality had to be genuine: Cannan had throughout the whole of the twenty-five years that I knew him a contempt for displays of cleverness for its own sake, which in itself was a healthy discipline for those brought into intimate contact with him. No use trying to impress him by intellectual

¹ Dr. Hugh Dalton in *London Essays in Economics in Honour of Edwin Cannan*, p. 14.

fireworks! There would be a pause, the black beard would shoot up at an angle, and then came the inevitable query which would bring the whole house of cards tumbling down.

The process of getting to know Cannan was made very much easier by the fact that the discussion classes of those days were very much smaller than they are at present, so that one simply *had* to say something. Cannan was never afraid of silences, and the whole atmosphere was absolutely free of hero-worship—it was all very simple and informal. There is the further circumstance that there was a pleasant habit of staff and students sitting quite indiscriminately amongst one another at meals. There used to be a small table under one of the sky windows of the old Refectory to which a small group of second- and third-year students used to gravitate—I remember Dr. Anstey, Mrs. Stocks and Mr. Piercy among the number—and it gradually became Cannan's habit, once a week or so, to join us and to talk in a free-and-easy manner about the non-intellectual matters which interested him. The scene to an outsider must have appeared singularly like that which in later years was to become familiar to those who enjoyed the simple Sunday afternoon hospitality of the Cannan household at Oxford—a group of young undergraduates at first very much in awe of the great man and then a thawing of the atmosphere as Cannan would pass from one topic to another: the sayings of the gardener or the local delivery boy, the ways of the Oxford City Council and the follies of the Great Western time-table, personal stories of “old Edgeworth” and of the members of the Oxford Political Economy Club: it was all so simple and natural that after two or three years of this kind of association one simply could not credit the picture which then passed current outside of a bitter and destructive critic intent only on demolishing the accredited tradition, and leaving only an intellectual desert as a result of his efforts.

II

I do not think it is possible to understand Cannan, either as a man or as an economist, without taking account of a few simple but important things about him and his circumstances.

To begin with, he possessed independent means, without which I doubt whether his career would have been possible. Throughout the whole of his long connection with the London School of Economics he was never a “full-time” teacher in

the technical sense of the term: his aggregate output was very large, but he never wrote against time or had to consider either his articles or his books (some proved unexpectedly remunerative) from the pecuniary standpoint: he wrote because he wanted to, and not because of any other consideration whatsoever. Ill health in youth forced him to take a pass degree at Oxford and for many years he lived very quietly according to his own wishes. I doubt whether the normal selection committee of a modern university would have regarded him as a promising young man, or whether, even if he had obtained the usual kind of provisional appointment, he would have been able to do precisely the kind of work—the combination of highly detailed scholarship with a very acute critical approach to the “received tradition”—for which his abilities fitted him. The institutions of inheritance and bequest, the enormous significance of which he was one of the first, if not the first, to stress, have no doubt often worked in an anti-social fashion, but by enabling men of the type of Cannan to be free from material preoccupations they have at times greatly assisted the progress of science. Certainly it was so in Cannan’s case.

Next, Cannan was a Scot with some of the typical Scottish intellectual virtues. I doubt whether there was ever a man more free from nationalist preoccupations, or less sympathetic to “racialist” theories: environment and not heredity would, I think, have been invoked by him as the main determinants of character. However that may be, Cannan was very Scotch: “pawky” and angular, very exact and methodical, very shrewd and painstaking, and with certain practices of economy which in the course of time became part of the attraction of the man himself. I think particularly of his method of conducting correspondence and the way he would compile the first MS. of a new book. One would receive post-cards representing unused proxy forms, reply-paid envelopes would be diverted from their original purpose, and drafts of chapters would arrive in expensive envelopes with O.H.M.S. crossed out, and be found, on investigation, to be typed largely on the backs of prospectuses and other miscellaneous printed material. I am sure it used to give Cannan intense pleasure to salvage material in this way: it was part of the practical side of his life, which was a much more significant thing to him than those who knew him only at the School suspected. To many of his friends, indeed, the picture of Cannan which they will treasure

in their minds will be of him in his garden, wearing a battered old straw hat, or in the summer a great straw sombrero, laying down the law on the proper cultivation of strawberries or some such horticultural subject whilst he was rolling the lawn or watering the beds. No man, in fact, was ever less "professional" in his manners or his way of life. He hated humbug and cant, and like many other shy and proud men, could get on very well with simple and so-called "uneducated" minds. Many of Cannan's profoundest views on practical matters of economic policy were greatly influenced by conversations with porters and ticket-collectors, the jobbing gardeners he employed and the innumerable tradesmen, odd-job men and others that he had got to know in Oxford—including his own tenants. They possibly thought of him as a rather "queer old gentleman": what he thought of *them* can be summed up by quoting his often-repeated remark that the working classes were their own sternest critics. In his estimate of the effects of the "dole," in his views of the labour transfer problem, American prosperity and the like, he was greatly influenced by "working-class" opinion, which he could reproduce admirably and without a trace of patronage. He had the greatest suspicion of professional "up-lifters" and of the intellectual protagonists of the claims of labour: for the workman himself he had the very highest regard.

Thirdly, Cannan was a liberal in the non-party sense of the word. For politicians and politics he had a most profound and obvious contempt: for certain human values a very deep-seated reverence. It was said of Leslie Stephen by F. W. Maitland that during the Boer War he hated to go out because of the posters; Cannan, without a trace of sentimentality, loathed and hated the war and all the evil passions to which it gave free scope. I have only seen Cannan really angry twice in his life—once at a meeting of the British Association when he thought that Section F was being unnecessarily insulted, the other occasion was on the day when Lloyd George threatened the use of Sanctions to enforce the payment of Reparations. There turned up at lunch a high Civil Servant whose official duty it had been to be present at the scene: his unofficial approval of what took place roused Cannan to an unusual and, to some of us, almost alarming pitch of fury. The war had hit him hard on the personal side—two brilliant pupils had been killed, and towards the end of the war there came an almost overwhelming personal blow—the

death of his only boy. The only way out was to plunge into work and more work—of that something will be said in a later section. During the war itself, his belief in a sane internationalism was sustained by one article of faith: one day there would be a reaction from all this bestiality which was devouring all that was most ardent and generous among the young. "We can almost hear Satan chuckle," he wrote in 1916¹ of Captain W. J. Mason, "when such a man falls and leaves the world more completely to the stupid and the blood-thirsty of both sexes. But the Devil has overdone things this time; a war in which half the world is allied is unfavourable to nationalism, and a war which is the biggest ever seen will be followed by the biggest reaction."

This is perhaps the right place to say something of Cannan's relations to his research students and to his younger colleagues.

Of the first relationship, I have no personal knowledge; but underneath a rather cool and critical surface Cannan concealed an immense pride in the achievements of his pupils, and not in the intellectual field only. In later years, when he had retired from teaching, nothing gave him greater pleasure than to talk of some of the men and women who had worked under him and to announce triumphantly how Mr. X or Miss Y. had been rejected by some other senior colleague, had been accepted by himself and how their after-careers justified his judgment. To the day of his death, he maintained an animated correspondence with ex-students scattered all over the world—no man was more generous of his time and experience, more willing to help one, or more caustic in his comments if necessity called for it. He did not suffer fools gladly—but then, how astonishingly few of his pupils turned out to be fools!

Of his relations to younger colleagues, I can write with intimate and heartfelt knowledge. There never was a less exacting and less authoritarian chief. If, at the London School of Economics to this day, the youngest assistant and the most senior professor can meet on terms of equality, it is largely owing to Edwin Cannan that that is the case. He was entirely without pretension; all he asked for was that one should be interested in one's job and, on the personal side, that there should be no humbug.

He would wander into one's room, hands deep in his trouser pockets, about ten minutes to one o'clock, and expect one to be ready to talk (or rather listen) till he was ready for lunch.

¹ *Economic Journal*, Vol. XXVI, pp. 402-3.

During the war and for some years after it, the "economists" would sit together for self-protection, as he used to say, against the historians and the geographers, who were a "more bloodthirsty lot" and against whose views he conducted a running battle. Lunch over, one was expected to go for a walk: across Lincoln's Inn Fields, through Lincoln's Inn, across the Strand to the Temple and then down to the Embankment, and so back to the School. The walk hardly ever varied; the walkers did and so did the conversation. Certain spots did retain a fascination for him: the north-east corner of Lincoln's Inn Fields, for instance. There, there used to be a house occupied by the gang which, during the war, managed gradually to accumulate a great stock of sovereigns from the Bank of England, which they gradually smelted into bars and tried to dispose of at a profit to themselves. They paid the appropriate penalty under the Defence of the Realm Code, but Cannan had a sneaking sympathy for them: it reminded him constantly of his fight for saner views on the function of a gold reserve during a period of inconvertibility. At Oxford, too, if one were staying with him, there were one or two favourite walks—across the Parks into Mesopotamia, or across the Canal into the Meadows. In the last few years, when "Lucy," the small car, had been acquired, Cannan became as ardent a motorist as he had formerly been a cyclist—with very strong views as to the behaviour of other road users. Motoring, gardening and cycling were the only forms of recreation which he permitted himself: so far as my recollection goes, he never mentioned the theatre or modern literature. For all the limitation of interest that that implies, he was a most witty and amusing companion, with a very lively interest in all the details of everyday life around him. By the time that the majority of those who were influenced by him came to know him, he was already no longer a young man: it is now nearly ten years since he reached the age of compulsory retirement from the Chair of Economics. But he remained vigorous in body and alert in mind almost to the very end, and there was nothing of the petulance of the "retired" intellectual about him. He would never allow himself to be treated as an old man—why, indeed, should he, considering that in the very year of his retirement he cycled to London when the General Strike cut off the train services? It was a lovable affectation, springing from the same refusal to be "coddled," that he would never admit that he was ill: it was always the doctors who "were

trying to make out" that he was suffering from such and such a complaint, as he would write to one on the relatively few occasions on which he was laid up.

This attitude he maintained to the very end: on the last occasion on which I saw him, when it was only too obvious that he was much weakened, he grumbled vigorously because "the fool of a doctor" made him rest after lunch, and even then he insisted on accompanying me to the station, and on walking back to the bus stop. It probably was very bad for him—but it was characteristic, as characteristic as his habitual reluctance to shake hands or to say "good-bye." If ever a man hid a most tender and sensitive soul behind a rather gruff façade it was Cannan: no man ever more lived up to the spirit of Leslie Stephen's famous advice to his collaborators on the *D.N.B.*, "no flowers by request." As I write these lines, I cannot help recalling another phrase penned by the same writer, at a moment of great personal sorrow, which sums up for me, and I think for many of us, our relation to Cannan, and his relation to us—"Men don't often make declarations of affection, and it's best not, but . . ." He refused discipleship: but I think he rather liked hero-worship, provided it was never obtruded. Before the publication of the *Review of Economic Theory* he sent me a rather caustic letter, complaining that we were all expecting too much and we would all be "disappointed," but when he, on another occasion, explained that the delay in acknowledging the receipt of his copy of *London Essays in Economics in Honour of Edwin Cannan* was due to the fact that he "had not the slightest inkling of what you were doing" and it took him "a few days to recover from my surprise and emotion," I am sure we all felt we had been paid the greatest compliment of our lives.

III

Cannan's published output is very large: if, in addition to the material which lies scattered in periodicals, one were to add the material hitherto only available in MS. form—such as the running commentary upon Marshall's *Principles* already alluded to, as well as the lectures upon "Public Finance," the total is indeed formidable. There can be no question, I think, that in the last two decades of his life his reputation rose greatly, but it is astonishing to find how little the true value of his contribution to economics is still appreciated.

During his middle years, he was apt to be dismissed as a "mere" historian of theory: even to-day, when it is obvious that his writings cover an immense field of thought, there is still in some quarters a disposition to dismiss him as essentially "unconstructive." That Cannan was unsympathetic to much of what passes as "constructiveness" and "revolutionary" in these days is true enough, but that does not prove that his own contribution is not original, and that in the highest degree. It is necessary here to be frank. One still occasionally meets the charge that Cannan was an essentially embittered man, whose pen was dipped in gall and the secret of whose critical attitude is to be explained in terms of personal resentment. Of his early and middle years, I have no right to speak. but if this attribution of attitude was ever true, it certainly was not true of his later years—his pupils were very much more jealous of his reputation than he was himself. Recognition he certainly appreciated; his Manchester D.Litt., for instance, pleased him very much, but honours, merely for the sake of self-display, he abhorred. He refused the F.B.A., for instance, without a moment's hesitation, in spite of horrified protests on the part of some of us. Cannan's treatment of his subject sprang from roots much more intrinsically worthy of consideration than his treatment by the academic world. One must take account of his training and of the profoundest strata of his intellectual convictions, as well as of the fundamental characteristics of his mind. He was born to be an intellectual rebel: his practical nature saved him from the joys of mere hair-splitting, and he happened to be at Oxford at the time when the Historical School was in the ascendancy: "At Oxford," as he recalls, "I underwent in regard to my social philosophy the kind of change which in regard to religion is described as 'conversion' . . . I not only learnt that the Norman Conquest was something greater than a scuffle of a few archers and men-at-arms in the neighbourhood of Hastings, but took to heart the truth that all important change is gradual, and that social institutions are not created by the sudden effects of inspired geniuses but grow 'of themselves,' usually slower than oak-trees."¹ Of the significance of institutionalism to him, I shall have a word more to say later. The "historical spirit" was never allowed to usurp the power of reason to arrive at truth: nor did mere historicism ever displace Cannan's interest in the application of economic

¹ From the delightful introduction to *The Economic Outlook*, 1912, p. 11.

theory to practical problems. "A professional economist" who allows himself to take a side in his classroom "almost always ends by regretting it. But the professor's reluctance to pronounce *ex cathedra* upon the practical questions of the moment does not mean that he admits that economics is of no practical use."¹ From the outbreak of the war down to his retirement in 1926 Cannan's interest was concentrated on the economic issues arising directly and indirectly out of the war. "What should I answer if anyone had the impertinence to ask me, 'What did you do in the Great War?' . . . The best answer I can think of is, 'I protested.'" ²

There are two other things to be said about Cannan's general approach to his science. He certainly appreciated exactness for its own sake (he was, for instance, an exceedingly good proof-reader, and when one used to send him copies of new books there would usually be a return postcard of "errata" and queries to attest his interest), but his interest in the classical economists was dictated by wider considerations than those of historical learning. The knowledge of past theory was consciously used in the reconstruction of existing theory: "There are no such blind followers of tradition," he wrote in his classical paper on the "Division of Income," "as those theorists who neglect the study of the previous history of the theories which they are endeavouring to develop."³ His passion for accuracy stands in strange contrast, incidentally, to what is sometimes regarded as Cannan's "looseness of style." He eschewed mathematical methods and made as little use as he possibly could of technical jargon, and this procedure certainly gives a superficial air of ease and oversimplification of subject-matter. Nothing, I think, is really farther from the truth: but Cannan's reputation has suffered from a style of exposition which should have aided it. Practical considerations dominated here: just as economic theory was to be useful, so the style should assist the argument.

It is odious and useless to assess the degree of originality possessed by a writer. Cannan's breach with the received tradition was at first too great to enable the positive contribution which he had to offer to be adequately judged. In the following respects the contribution which he made appears to me to be original and of permanent significance.

(1) His treatment of institutions. It is not only that

¹ *Economic Outlook*, 1912, p. 22.

² Preface to *An Economist's Protest*, p. v.

³ *Economic Outlook*, p. 226.

institutions are intractable things and as such offer impediments to far-going changes if these are intended to take place very rapidly: the real significance of institutional changes is that such changes ought to prevent economists from believing in clear-cut divisions between particular schools of social philosophy. "At the present time, I should attribute the harmony (between self-interest and the common good) which exists to the success of society, continued throughout history, in establishing and gradually modifying its institutions so as to make them as suitable as possible to the circumstances of each period of human development. A man's intelligent pursuit of his own interest generally serves others besides himself simply because the institutions of society provide hedges which are generally close enough to keep him on the road. When it is found that institutions fail to make it the interest of each man to serve the rest, society abandons or modifies them."¹ This attitude towards the relations between institutions and human beings goes far to explain Cannan's empiricism and his dislike of those who refuse to take the next step called for by circumstances, because it might commit them to a general philosophy which they dislike.

(2) His interest in institutions, or rather in their significance to economic life, is responsible for one important strand in the treatment of the whole subject of distribution. "Ideal" distribution, he consistently taught, is distribution according to need, but one of the most obvious though largely overlooked impediments to a more equal distribution was the institution of inheritance and bequest, which perpetuated inequality, not only by making some people "richer" than others in the ordinary sense of possessing more or less property, but by giving them unequal opportunities of selecting the more attractive and more remunerative occupations. Important as it was (and is) to stress this particular point, it is not so important as Cannan's emphasis upon what he called "distribution proper" as compared to the "pseudo-distribution" doctrine handed down by the received tradition. Economic theory dealt only, and in his opinion unsatisfactorily, with the "marginal" reward of factors or agents of production: what the average man was interested in knowing was distribution of income among *persons*. Was income getting more or less evenly distributed, and, if so, what were the factors bringing these results about? Partly in order to clarify this problem,

¹ *Economic Outlook*, p. 25.

partly for other reasons, he developed the distinction between "incomes from labour" and "incomes from property," holding that in an old country the distinction between Land and Capital was purely artificial: instead of treating the income from some machines as in the nature of a rent, he treated income from land as being in the nature of interest from invested capital. Whether for analytical purposes this assimilation is valid or not, I leave out of account here: for the purpose of expounding "Distribution Proper" it most certainly is. The value as a whole of Cannan's work in this direction is immense, in my judgment: it destroys at one blow a great many prevalent and dangerous misconceptions. No man who has been through this discipline will hold that it is possible to prove anything about the distribution of the national income by citation of the "proportions" into which it is divided, so long as no information is given either about the number of persons enjoying the proportion in question, or the extent to which owners of income from labour are also owners of income from property and vice versa.

(3) The third great contribution made by Cannan is his development of the doctrine of the optimum size of population, one of the first contributions to be made by him,¹ and the one also most widely acceptable to economists of all schools. There is no "ideally right size of population" independent of all circumstances of time and place: the rightness of the size must be judged in the light of available resources, just as the productivity of the resources must be judged in the light of the population which is to utilise them. Given certain resources there is at any moment a certain size of population which, under lasting circumstances, can use them best, i.e. returns will be at their maximum; a smaller or a larger population would then be inappropriate. The optimum point is thus constantly shifting: the world may have been over-populated in the past, and be under-populated now: or it may be over-populated now and be under-populated a century hence, even though absolute numbers may have greatly increased in the future. The development of this doctrine should have liberated the human mind for ever from certain inherited obsessions, but population theory, to judge by recent controversies and policies, appears still to be greatly misunderstood.

(4) During and after the war Cannan became greatly

¹ On this point, cf. Robbins: *The Optimum Theory of Population* in *London Essays*, etc., p. 114.

interested in theories of money and banking: I have examined his views at length elsewhere and can write little of them here.¹ He shares with Petty, Walras and Marshall the distinction of having elaborated the "Cash-Balance" theory of the value of money, generally known as the "Cambridge Equation." There can be no question that he re-discovered the idea, of which very little, if any trace, can be found in the pre-war literature, apart from Marshall's evidence before the Gold and Silver Commission, which without doubt was unduly neglected. By applying Sidgwick's concepts of "extension" and "intension" of demand to units of currency, Cannan greatly assisted in making clear the view that the elasticity of demand is not always unity.

The second controversy which Cannan conducted in the monetary sphere was on the nature of bank deposits. He was the protagonist of what has since become known as the "Cloak-room" view of the lending function of banks. Cannan's view that banks "could not lend what they have not got" was primarily directed against the twin ideas that a particular theory cannot be proved by an inspection of bank balance-sheets, and that a bank's lending capacity *at any moment* was a simple multiple of its accruing net influx of cash: he never denied, of course, that additional cash supplies added to lending capacity. But behind all this detail there was a much more important point: bank deposits were not a form of *money*, but a form of property, held because it was convenient to invest in this way. This promising line of thought has recently been revived by Dr. J. R. Hicks,² whether right or wrong, it obviously raises issues much wider than those involved in the solution of the problem, how much can banks really lend?

(5) Very early in his career, Cannan developed an interest in problems of local and municipal finance, one of the first fruits of which was his *History of Local Rates*. The problem of the incidence of local taxation hardly rouses passionate feeling to-day, but Cannan's treatment of it is a marked example of the "common-sense" treatment of an intricate subject.

The shifting of a "beneficial rate" is assimilated to the general case of demand: if the grocer's bill or butcher's bill were paid for one, competition to live in the favoured locality

¹ *London Essays*, pp. 31-65.

² *A Suggestion for Simplifying the Theory of Money*, *ECONOMICA*, February, 1935.

would drive up house rents: an "onerous" rate is simply a special case of a disadvantageous position, which discourages settlement and reduces demand and with it the rental value of fixed property. It was in connection with his investigation of these topics that Cannan developed his views as to the relative significance of "economy" and "equity" in matters of taxation. It was his belief that what people find to be economical they will in the long run also find to be equitable: a "canon of taxation" which is well worthy of being studied on a wider plane than of merely local taxation.

(6) No one has ever questioned the intrinsic quality of Cannan's contribution to "Dogmengeschichte"—in that field he stands without a rival. But the ultimate result of his labours, I think, has been misunderstood. "I fear I shall disappoint anyone who expects me to hold up a few chosen economists as exempt from human error, and to exhibit all their opponents as persons of feeble intellect, who entirely failed to understand them." So he wrote in 1893 in the Preface to the First Edition of the *Theories of Production and Distribution*. He may have stripped Smith, Malthus and Ricardo of the mantle of infallibility, but he has clothed them instead with the attributes of humanity: now that our world shows every sign of relapsing into the barbarism which the English and French humanists helped to destroy, it requires something more than a faulty syllogism to break the tie which connects the economists of to-day with their predecessors of a century ago. If humanism is still a living tradition in English universities to-day, it is to men of the stamp of Cannan that we owe that invaluable heritage. "Sir," said Johnson to the young Boswell, "rid your mind of cant." Those of us who were Edwin Cannan's pupils and colleagues want nothing more than his memory to protect us against the imbecilities which pass current as the wisdom of the day.

The Economic Equality of States

By M. J. BONN

THE claim for equality amongst states was originally a purely individualistic notion, expressing a craving which animated their rulers. For these rulers, who looked upon the state as their personal patrimony, desired passionately to be the equals of other "state proprietors" as to size, population and resources of their possessions, as well as to their financial means and their military establishments. They were often not satisfied with the genuine power and wealth of their dominions; they longed for appearances and equal rank in the princely hierarchy. They built royal palaces to vie with Versailles, though they did not inhabit them, or could not afford them. They ran their court life on approved lines, though it may have bored them to desperation. They raised armies which they dared not use and built navies which they did not need. Often enough this striving for equality has led them into policies which did not serve the true interest of their States.

The advent of democratic forms of government has intensified, rather than lessened, this desire for equality. The main political issues are not decided collectively. Individuals carry out or interpret or shape the wishes of the masses whom they represent by decisions formed in their own individual brains. No organic conception of state or society can alter this fact—though the fluidum of mass-influence may easily cloud and clog the workings of an individual's mind. A magnetic personality who knows how to build and run a propaganda machine can easily cast his spell over the masses and make them subservient to his aims and ambitions. Trade and transportation have connected with each other millions of individuals who are living under different régimes in various parts of the world. They know of each other's status and compare it in friendly or unfriendly rivalry. They generalise from accidental experience and take their own purely personal inferiority or superiority complexes as indices of their nation's

international standing. They may be more ignorant of the ways and means of foreign lands, than were old-fashioned princes jealous of each other; but their yearnings for what they consider equal rights for their nation and equal opportunities for themselves are at least as ardent. And the stronger the craving for equality at home, the more easily they can be roused to demand equality with other masses abroad.

Two different objects are comprised in this insistence on equality in modern politics. There is, on the one hand, a demand for *equal rights* and on the other hand a demand for *equality of opportunity*.

When Italy stated she "would feel herself profoundly wounded in her dignity as a civilised country if she had to continue the discussion within the League on a footing of equality with Ethiopia," equality of status and of rights was in her mind. She, in fact, refused to recognise this equality in Ethiopia. She takes her stand on the assumption "that a backward nation cannot be the equal of an advanced nation." She insists that such backwardness justifies the use of otherwise inadmissible political methods. She clears her conscience when degrading Ethiopia to a status of inequality by claiming for herself equality of opportunity with nations which are controlling backward dependencies, subjected at a time when the Covenant was not yet in force.

I

The demand for equal rights (legal equality) involves two separate issues; one quantitative, the other qualitative. It is, on the one hand, a demand for equal rights (equal status) for small states as well as for big states; it insists, on the other hand, on the abolition of inequality between ruling and subject nationalities, between master states and subject states. Both nations are incorporated in the Covenant. All states which have joined the League of Nations enjoy an equal status—though there is a slight preference given to the powers which are permanent members of the Council. If Ethiopia cannot be deprived of her membership, Italy cannot colonise her without breaking her engagements. For the members of the League possess equal sovereignty, whatever their size or their importance may be. They cannot have a master.

Sovereignty is but a meaningless term when the government

entitled to it cannot preserve its independence. Equal rights cannot be maintained by claimants without adequate strength, or without the backing, severally or collectively, of more powerful states. The survival of weak states amongst giant states is mainly due to such backing. Some of them are so favourably situated as to make conquest difficult and unprofitable. A few owed their separate national existence to the jealousies of the Great Powers of each other; their incorporation would have disturbed the balance of power which was preserved by Great Powers. Others again safeguarded themselves by entering alliances directed against possible strong disturbers of the existing political order. The League of Nations equalises its members by providing collective security for them. If it can maintain it the weak have secured the most important privilege of the strong. At the same time the growth by aggressive methods of powerful and ambitious members is no longer possible. Under the rule of the Covenant the territorial expansion of its members is limited. They can federate with other states or exchange territory with them; they cannot conquer lands from each other.

II

The plea for equal rights of states is closely linked up with the claim for equal rights for all men, from which most modern revolutions have sprung. The notion of all men being equal, as far as they are endowed with human reason or with a living immortal soul, resulted in a system of laws from which privilege for or discrimination against any group or individual was banned. Originally it concerned only the limited groups of people under a separate national government. But if the philosophic principle on which the claim for equal rights was based held true, the essential equality of all men severally or collectively within or without the national boundary, could not be denied. All laws emanated from an unwritten law of nature, which bound all mankind, and which was either embodied in the various national codes of law in force or over-ruled them whenever there was conflict or divergence. This being the case, groups of people or scattered individuals embedded in a state-population, from which they differed in origin, outlook, habits and language, were entitled on equal terms to access to the national courts

and the use of the national codes. Minorities were not supposed to live under their own separate laws, neither enjoying privileges nor suffering discrimination. Neither the capitulations exempting the nationals of conquering colonising European powers from native law and native jurisdiction, nor anti-alien legislation (such as some anti-Japanese enactments in the United States of America) comply with this notion of "equal rights."

It implies political as well as civil rights. The status of a separate national or social group, subject to the will of a distant government, which it does not control (colonies), is inferior to that of other groups which can control their own government (motherland).

The principle of equal rights in "The Declaration of Independence" was not laid down in order to further social equality within the borders of the thirteen colonies, but as a protest against the want of equality between the colonies and the motherland. As the rights of Free Britons in the colonies were not respected by the Metropolitan government—Adam Smith had drafted a project for colonial representation—the colonies renounced their allegiance to the mother country. By asserting that men are "created equal" and had the right, when they so desired, to "assume among the powers of the earth the separate and equal station, to which the laws of Nature and of Nature's God entitled them," the Declaration of Independence became the Charter of equal rights for all subject nations. If all men were created equal slavery affecting individuals should not be tolerated anywhere, nor should any group of people be deprived of their group-liberty. Colonisation was a violation of the equal rights of nations; the Monroe doctrine explicitly denounced it on the American continent. And the right to counter-colonise, the right of subject countries or races to rebel against their masters and to establish their own independent government exercising unhampered sovereignty, cannot be denied.

III

But colonisation is a world-wide phenomenon. Divergent civilisations representing antagonistic political and cultural systems have been involved in it, preventing the establishment of a system of equal rights for nations, states and governments.

There may be no objective standard by which the superiority

or inferiority of a civilisation can be settled. But the adherents, or one might even say the practitioners, of each civilisation use their own way of living as a ready-made measure by which they judge the value of others.

The consciousness of this distinctiveness of individual civilisations, be it ever so dim, might be called "nationalism." Nationalism, as such, precludes equality. It can, at its best, allow for equal values in different forms of life, and admit a kind of formal "equality of rights" by conceding sovereignty to uncivilised, as well as to civilised, states. In practical politics nationalism has always been inclined to consider the nationalism of other races as "inferior." There is little to choose between the arrogance of the earlier Chinese in regard to the pre-eminence of their own civilisation and the superiority complex of the ancient Jew or of modern Nationalists.

But there is *one* fundamental distinction. Sometimes nationalism has been *missionary and propagandist*, at others it has been *self-sufficient and exclusive*. The difference between the two types is due to diametrically opposed theories of the origin of distinctiveness, one view ascribing it to inheritance and the other to environment. Nationalists who regard the distinctiveness of their nationality as resulting from a physical process (or a kind of psycho-spiritual endowment) are *exclusive and self-sufficient*. They have no use for spreading it as gospel by propaganda. It cannot be learned. It can be transferred undiluted only by pure-blooded parents to their children, who must not inter-breed with other, less favourably endowed strains. Such was the nationalism of the old Jews, who, as Chosen People, were unwilling to share the benefits of their superior inheritance with members of other nations. Their way of spreading was the extermination of their enemies. Whenever they broke the law and mixed and mingled with other strains, calamity overtook them for having violated the sacred covenant. Some modern philosophies somewhat resemble this primitive creed. They have raised a kind of scientific sub-structure on the teachings of biological materialism, embodied in the more naïve forms of Darwinism.

The great colonising powers of the world on the other hand believe in the missionary qualities of their nationalism. They want to spread their system of civilisation all over the world and impress it on native races. Thus they became great cultural propagandists, who subjected other nations to their cultural as well as to their political rule. Sometimes their

nationalism was *tolerant*; they let the natives keep their own social system and often assisted in developing it. They were quite willing to maintain a status of inequality indefinitely, administering two distinct social systems at the same time with more or less fairness. In other places they strove for final equalisation by relying on emulation and on what has been called the *infective* quality of their civilisation.

They frequently considered complete assimilation a necessity of state. They were willing to concede equal rights to the natives, as soon as they had conformed their ways of speech and habits, of thought and action. They used compulsion to accelerate this process. Their nationalism became *coercive*.

Colonising aggressive nations representing *exclusive*, *coercive* and *tolerant* nationalism were confronted by defensive civilisations. In some cases their adherents were keen on adopting the master civilisation which had overwhelmed them. Their nationalism was becoming *imitative*. The Indian Baboo stands for this type. But often enough they were willing to die rather than give up an iota of their language and their habits. They believed in the superiority, not merely the equality, of their own ways; their nationalism was *defiant*. This *defiant nationalism* has been the driving force behind the counter-colonisation movement all the world over.

A third and less pronounced type might be called *accommodating*. Though the nation is sticking to its native ways for the time being, there is no purposeful will behind its attitude; its opposition is growing weaker and weaker with the greater knowledge of the master civilisation and the rise of a young generation responding to its allurements.

In the past, colonisation was a legitimate process of national growth. The subjugation of weaker nations was justified by the assumption that it was the duty of an advanced state to spread its civilisation by conquest and to assimilate the natives either by coercive methods or by the slower work of an attractive superior social system. Where nationalism was *exclusive*, this was a mere pretext. For there can be no assimilation to a chosen people, which represents a social unit towering above all others in strength and value. It can subject, exterminate or exploit weaker races, it cannot concede equal rights to those God or Nature has made inferior.

But the process of equalisation (assimilation) has not always been pursued by political subjection; it has been accomplished by deliberate *imitation*, by *voluntary colonisation*. After having

shed the frayed cover of early Arabian and Persian civilisation, Turkey is now pursuing a policy of voluntary colonisation. She is aspiring to equality with the western powers, not merely by insisting on an equal legal status, but by assimilating of her own free will (emanating from a dictator) her national institutions to those of the west.

Where voluntary colonisation cannot be relied upon, the concession of equal political status to a backward country may seriously retard its social development. Equality of status can either be granted in order to let the beneficiary revert to his national type or to facilitate his assimilation to that of the grantor, or to maintain a more or less mixed state of civilisation. In neither case is equality of status equivalent to equality of social structure. In the first instance its object is to prevent it, in the second to accelerate it.

Many a native civilisation might have developed satisfactorily on its own lines if imperial intervention had not atrophied its growth. The mere withdrawal of foreign rule will not revive a native system once destroyed. Imperial guidance may be inevitable until imported institutions have taken root so deeply as to form a workable substitute for the original native foundations. The covenant as conceived in President Wilson's mind supplied, in rather a hazy way, a method for the liberation of backward subject races by means of the mandates.

In politics—though not in theory—there are various grades of equality of status. One group of nations is holding other nations in a state of subserviency. Another group does not exercise such domination. But some of its members aspire to a position of ascendancy, demanding equality of status with the Great Powers exercising it.

The only independent country left, the social structure of which puts it on a level with dependent countries, is Ethiopia. She has so far been exempted from the fate of subserviency she otherwise might have suffered by becoming a member of the League of Nations. As such, she is the equal of all other members, notwithstanding her primitive social structure. If her integrity is successfully upheld by the League of Nations, the principle of equal rights, even for a backward country, is established. And the Monroe doctrine denouncing further colonisation may ultimately be applied to the entire world, though existing colonies are not yet affected.

IV

Inequality of status is not confined to governments representing backward civilisations. Many states do not enjoy full sovereignty. The Statute of Westminster has given the great British dominions complete equality with the motherland; but this may imply a kind of diminished sovereignty for each self-governing partner of the Empire, including the United Kingdom, as they are becoming member states of a Federation. The forty-eight states forming the United States of America are equals; but none of them can match the status of the republic of Haiti, which enjoys full sovereign rights. Some French colonies are partners of the metropolis, being represented in her legislative bodies; they share her sovereignty, they have none of their own.

Other States, most of them native, are under the protectorate of a ruling state which controls their foreign relations and supervises some parts of their administration. A somewhat slighter infringement of sovereignty and equality is involved for Egypt in the claim of the United Kingdom, to reserve to herself the right to watch over the "security of imperial communications, defence against foreign intervention, direct or indirect, and the protection of foreign interests." Some of the countries with impaired status are subject to financial control by foreign creditors, who supervise or even administer the collection of revenues pledged as securities for loans. The treaties of peace extended this system of financial control to the Central Powers. Until the signing of the Lausanne Agreement Germany's fiscal sovereignty was not complete.

Full equality of political status does not exist, when unilateral limitations restrict the armaments or the actions of a sovereign power, whilst others are not equally bound—in the Central Powers under the Peace Treaties or in Russia after the Crimean war. Denmark and Haiti, if they so desire, can form a union without needing the consent of any other sovereign state. But the union between Germany and Austria cannot be accomplished, if the signatories of the Versailles treaty object. And the United States have, through the Monroe doctrine, limited the sovereignty and the equality of status of the other American states. Though the political systems of the two continents are no longer fundamentally opposed to each other, as they were when the Monroe doctrine

was proclaimed, they would strongly object to a federation of Venezuela with Spain.

V

There is little connection between equal rights of governments and equal rights of their nationals. The equality of status granted to Ethiopia in 1928 has not given her tribesmen the rights citizens of Switzerland enjoy. This is no longer a case of "Western Democracy versus Oriental Despotism." Recent European dictatorships, Bolshevist or Totalitarian, have reduced the civil as well as the political rights of their subjects considerably. The inhabitants of Soviet Russia, as well as the subjects of Totalitarian states, cannot enter freely into many of the contractual business obligations which are the backbone of western economic life. There is even a considerable contraction of civil rights in the economic sphere in countries subject to strict exchange control. A commercial treaty, which extends rights of unrestricted immigration to nationals of a country, who may not emigrate, presents them with equality of opportunities they are not permitted to take advantage of. There may be complete equality amongst all "comrades" in Russia, but no comrade enjoys to the full the rights guaranteed to American citizens by the American constitution.

International divergences of this sort were first encountered in the business relations of the West with the East, and settled—without reciprocity—by the early capitulations. They do not matter much where national life is autarchic and where international relations are restricted to government intercourse. These governments could easily meet each other as equals and ignore completely the material and cultural divergences of the social structures they represent. Indeed Totalitarian "single-party states," which greatly limit the rights of those subject to their rule and flatly deny that men "are created equal," are often the most outspoken advocates of equal rights to all states.

VI

Equality of opportunity may be defined as a state of affairs in which an individual (not differing very much from other individuals) has a chance of exercising his faculties, such as

they are, under fairly equal conditions. As the assertion "men being created equal," was meant to embrace the citizens of every commonwealth, it implies a claim for equality of opportunity for all nationals of all countries. They should have an equal chance for earning an equal income with an equal effort and for accumulating an equal capital within the same period and with the same sacrifice of "abstention."

They cannot get it within the confines of their own state; at least not in the older societies, where social stratification has long ago hardened into all sorts of class distinctions. But the great empty settlement areas of the new world offered fairly equal chances, for acquiring cheap land or for earning high wages, to everybody willing to work. During this period, which was unique, the inequality of opportunity between old and new countries was enormous—though the natural advantages of the latter were counter-balanced by lack of capital equipment, by high rates of interest, high wages and dearth of general cultural facilities. Even now differences are very marked.

There are a few large continental units, the United States, the British Dominions in America, Australia, and perhaps South Africa, Russia, Brazil, and possibly the Argentine, which cover huge contiguous territories, are sparsely settled, and offer vast opportunities to their populations. In full contrast to them stand thickly populated countries like China or British India, which, notwithstanding their size, experience severe pressure under a primitive system of organisation. There are two far-flung empires, the British Empire and the French Republic, in which a comparatively small European metropolis controls various forms of spacious dependencies rich in natural resources. A group of economically progressive states, Germany, Italy and Japan, have a redundant population pressing against limited natural resources, and no, or no considerable, colonial outlets. The Netherlands, Belgium and Portugal, themselves small-sized, rule colonial possessions far surpassing the homeland areas. And finally there is a large number of medium-sized or smallish states, Scandinavia, Switzerland, Spain, Poland, Austria, Hungary, the several Balkan States and many others, European as well as non-European States, which have scarcely any dependencies. Some of these countries are sparsely settled and have ample room for growth, like those of Latin America. Others again are thickly populated, very progressive with no chance for expansion.

Opportunity might be measured in terms of national income and national wealth (of countries or per head of populations); correlations of rates of wages and of interest, of prices (especially of farm lands) and of standards of living might be added. Untouched reserves of resources might be tabulated and related to population. No definite standards could be established.

There are nowhere the same opportunities, either for existence or for growth. There is neither an equal distribution of natural resources, inherent in soil, climate and situation, nor of social or cultural facilities; the rate of increase of populations varies everywhere.

Equal opportunities might be offered to the nationals of all countries by the establishment of full freedom of movement all over the world—in the middle of the nineteenth century a tendency in this direction was discernible. In such circumstances populations would move towards those spots which offered them the greatest chances. The world would be settled anew somewhat after the pattern of a recently discovered goldfield to which members of all nations rushed, and on which many of them made good. The natural distinctions between different races, efficiency as well as power of adaption, would count for a great deal; but this would be the merit or fault of nature and not of society.

Thanks to modern transport facilities, participation in equal opportunities does not depend any longer exclusively on migration. Densely populated countries need not export men any longer, they can import grain at prices not much above those ruling on the prairies and pay for them in manufactured goods, which reach the farmer settled overseas fairly cheaply. Trade, migration and international loans are capable of partly equalising opportunities for the nationals of various countries regardless of political control. They tend to equalise prices as well as wages and rates of interest. The stay-at-home capitalist can participate in the profits of exploiting virgin soils by sending his capital abroad, thus cheapening credit in the new countries and raising the rate of interest at home.

As long as the new countries were willing to accept immigrants and imports from the old countries with scarcely any restrictions, they offered those populations a share in their opportunities. And as long as the older countries were ready to admit raw materials and foodstuffs the new world was

offering them, without taxing them, they could participate on almost equal terms in the plenty of oversea.

This early phase of world-wide economic co-operation is gone. In most settlement areas—dominions as well as sovereign republics—the remaining opportunities are more or less reserved to the resident native population; there is little desire for sharing them with the inhabitants of other countries—not even with the countries from which they descended, on which they depend and with which they are joined in imperial partnership. Asiatic immigration was prohibited when it began to prejudice the chance of white workers. For there is no real equality of opportunity for workers who need four shillings a day to satisfy their wants and feel comfortable and for those who can live on one shilling. The balance is in favour of the unpretending race, even where its output per head is low. If four natives do the work of one white man at the cost of half a white man, theirs, not his, is the opportunity. The communist rule: From each according to his capacity and to each according to his needs, offers better opportunities to those satisfied with lower standards when equal rights are conceded to them, than to advanced races.

Whilst the new countries were reserving better opportunities for their own inhabitants, the older countries on the other hand voluntarily so to speak prejudiced themselves, by taxing the hitherto free imports of oversea foodstuffs. And the new countries followed suit by developing costly protected industries, originally because they wanted to accelerate their growth by attracting immigrants and capital, later on for purely internal reasons. Since the free movement of men and of goods has been restricted, the inhabitants of the older, more densely populated countries, no longer enjoy the equal opportunities which fairly free international intercourse had given them in the new countries.

This is not universal. For the nationals of States controlling dependencies which have not yet reached dominion status are favoured in so far as they are not dependent on foreign governments and their arbitrary acts for the supply of their raw materials; they are sure of selling to markets which cannot be closed to them. As none of these dependencies are settlement colonies, immigration does not much matter, the less so as dominion governments are not much kinder to their

own race than to foreign immigrants; they have, for a long time, been more exclusive than the United States.

The closing of frontiers for men and goods all the world over decidedly contracts the opportunities of non-colony-holding nations like the Italians or the Germans. Their opportunities are considerably less than those of the inhabitants of the British Isles, though they are quite as good as those of Switzerland, Denmark or Austria. In fact they are better. For the home market of a large and populous country counts for more than the home market of a small country. It can insist on greater concessions in international tariff negotiations. Most recently acquired colonies, moreover, and all mandates, are subject to a kind of open-door system, which obliges them to offer the same terms to goods coming from the mother country and to goods coming in from abroad.

VII

Opportunities under a foreign flag are rarely quite equal. There is nearly always a slight element of discrimination. The citizens of one country settling down in another country are always handicapped. The new country may receive them with open arms; she will insist directly or indirectly on their shedding part of their cultural inheritance. She need not coerce them, they cannot avoid assimilating themselves, at least outwardly, to new conditions of life and language. They, and certainly their children, are lost from the point of view of the original national civilisation.

There is, moreover, no absolute guarantee against the closing of the "open door" through which goods, services, and men are admitted on equal terms. Notwithstanding detailed rules laid down in international agreements, the government administering a dependency can always favour the nationals of the Metropolis, especially by the drawing up of tenders for government contracts or for public works. And even where equality of treatment is scrupulously accorded to goods and men irrespective of the country they come from, discrimination in favour of local resident-interests is almost inevitable. The most favoured nation clause, as such, and open-door agreements do not oblige the resident government to grant equality of opportunity with resident natives to foreigners; they merely bind it to treat all foreigners alike, without abolishing native preferences. The tariff system

protecting national industries shows this clearly enough. For resident populations in settlement areas as well as in native dependencies are rarely inclined to sacrifice the natural advantages of an undeveloped country they are enjoying to the abstract principle of sharing them with foreigners oversea. To exclude the foreigner from exploiting national resources, even though the nation cannot yet thoroughly utilise them, may be a "dog in the manger" policy in foreign eyes. It may be a far-sighted policy of conservation in the eyes of the natives—for example of the adherents of a white Australia.

The control of international highways, of important supplies of raw material, of indispensable markets or of financial wealth, will enable a country possessing them to put pressure on countries needing them. The unequal distribution of such resources can be used as an economic substitute for war. And though it may in some cases prevent it, it will in others precipitate it. If economic inferiority due to lack of raw materials within its borders may expose a country to war or to economic sanctions, military measures applied at a favourable moment may ward this danger off. The fear of war will prevent future belligerents as well as neutrals from relying too much on economic opportunities offered them, which are under the control of a possible belligerent; it detracts from their value even in an era of peace. For if war cannot be outlawed completely economic security depends on the political control of all essential elements of production.

VIII

Governments declaiming on equality of opportunity are rarely primarily interested in the economic well-being of their individual citizens. They would much rather keep them at home, than offer them wonderful chances abroad. They want the same chance other nations have had to thrive in numbers either within their own internal national territory by means of *commercial expansion*, or within oversea areas by means of *colonial expansion*. They prefer colonial expansion by conquest to commercial expansion by foreign trade. They naturally desire to raise their efficiency and to maintain social peace. They insist on an adequate industrial development, because manufactures are needed for defence and because a manufacturing state is nearly always richer and more advanced than an agrarian state of the same size. There is something of the

yokel's half-witted admiration for complicated machinery in an agrarian nation's attitude towards industrialisation.

Beyond this the plea for equality includes the wish for accumulating wealth in order to finance the nation's economic life without borrowing from foreign capitalists, who may use their cash for political objects. One ought to be in a position to wield the weapon of finance against others. Equal security is best attained by equal or superior armaments, which the country should be able to pay for; and the raw material needed for them should not be under foreign control. The real meaning of equality of opportunity is an equal chance for exploiting under the national flag ample natural resources for growth and defence in order to accumulate wealth, and to organise adequate power to hold a dominant position amongst nations.

There has always been one nation, the particular fitness of which for dealing with special circumstances, made her a kind of pattern, other nations were willing to imitate. In the age following the industrial revolution, this leadership had fallen to the United Kingdom. When modern nations argue about equality of opportunity, they mean more or less the opportunities England has been able to turn to good account. Even the United States, with a territory offering greater opportunities than can be found anywhere else, temporarily imitated England and acquired colonies. Many nations have hoped to plant daughter states as England has done, completely ignoring the fact that no vacant continents are available.

As governments passionately desire opportunities for equal growth so that they can match the strongest and richest power in existence, their ambition is not satisfied with complete equality of opportunity for their nationals. Commercial expansion under an universal system of the open door might give it to them. But by getting it they might lose man-power and capital. They would neither gain economic independence in peace nor economic security in war. They do not want outlets and wealth; they want territory, power and security. If they cannot get economic security by universal disarmament—or by military ascendancy on land, water or air—they must get it by having all essentials of production under their own political control. For this reason they prefer growth by territorial expansion to growth by trade expansion.

To the private citizens of the metropolis, colonies may be

very profitable. To the state they are nearly always a burden. They saddle the budget with heavy expenditure. And though they may be turned into plentiful army recruiting grounds, their control implies very onerous military sacrifices. It weakens the home defence and necessitates a scattered naval policy. The great ocean lanes must be protected or colonial supplies will never reach home ports in war. The settlement of enormous vacant spaces no longer holds out chances to mass-emigration, for no such areas are in existence. But colonies provide an excellent safety valve for social tension. They attract young people keen on adventure, who are not suited to the tame industrial pursuits at home. They direct the energy of ambitious soldiers, sailors, civil servants and merchant adventurers into far away enterprise, where they can accomplish heroic deeds, promising wealth, glory and excitement. It is far cheaper to expand the national structure at a heavy cost to the taxpayer, than to let loose those disruptive energies at home. And they fill the Philistine, who hugs his hearth and who does not want to run risks, with dreams of imperial grandeur and responsibility. They flatter his amour-propre and sooth the envy with which he is apt to regard the possessions of more fortunate nations. They may only be worth having if the cost of acquiring them and the effort of keeping them are comparatively small. And under present conditions, the acquisition of the few countries which still might be made into colonies is sure to be expensive.

Such considerations will count for little. The possession of colonies is looked upon by states, whose ambitions are unsatisfied, as an outward sign of international superiority. They want equality with the master-states and not with states which are merely free. If the master-states do not renounce their empires, they mean to have empires of their own, which will furnish them equal opportunities to be rich and to rule.

A policy of territorial aggrandisement can only be pursued successfully by a strong state, which can victimise backward unannexed countries, the conquest and the control of which look attractive.

A few densely populated and highly industrialised states, such as Germany, Italy or Japan, feel cramped and desire breathing-space; and they mean to rank with England and France as great world powers. They represent a group of "have-nots" confronting the "haves." As they can assert

themselves their dissatisfaction may endanger the peace of the world. The purely formal equality of status, to which membership of the League of Nations did entitle them, has been irksome to them. The Covenant tends to eliminate wars of aggression; it blocks the road to conquest, over which erstwhile small states have travelled hitherto to imperial grandeur. There are no other ways leading to territorial greatness than conquest, confederation or cession. So far no efforts have been made to re-arrange colonial possessions under the rules of the Covenant. They see in it a kind of syndicate guaranteeing the rights of the "haves" against the "have-nots." They prefer to remain outside the League or to leave it. They are not interested in equality all round. They do not want to raise Switzerland or Sweden to their level and aggrandise them by colonial conquest; nor do they stand for counter-colonisation all round, depriving the master-states of their privileged position. They wish to share it and become the peers of England and France, and, as far as far-flung empires can match contiguous empires, of the United States and Russia. Their demands are not so much based on philosophical conceptions, as on the very simple assumption that a nation must be allowed to expand because of its numerous and efficient population. Bigness, in fact, is a virtue, which must be rewarded by greatness. They are not willing to adjust a disturbed equilibrium between natural resources and population by reducing the birth-rate—though it does decrease all the time. They insist on their right to grow according to their own standards.

IX

No claim can be made for keeping Swiss or Scandinavians cooped up within narrow frontiers, whilst Japanese and Italians may spread. But the case looks different when the claimants' limited opportunities are compared to those of England, France, Russia and the United States, which, in their view, are unlimited.

There is not much use in entering into historical or legal disquisitions of the origin of colonial empires. Facts and feelings do not disappear, when their causes are impartially explained. The real issue is whether new claims should be settled by force or by peaceful arrangements. An appeal to force would scarcely be successful if met by the united forces

of the entire League. But there is no reason why the members of the League, who themselves are "non possidentes" should stand up for the privileges of the "beati possidentes," if the "have-nots" were willing to have their claims adjudicated by peaceful methods.

The Covenant as such is clearly opposed to further acts of colonisation. Its authors endeavoured to make the Anti-Colonial Plank of the Monroe Doctrine the law of the world. But it does not do away with colonial domination—neither did the Monroe doctrine on the American continent. It merely puts a stop to further colonial conquest of independent states, if they are members of the League. It insists on equal rights for all member states, large and small, backward or advanced.

This being so, four questions arise:

(1) Can colonial possessions be rearranged in such a way as to satisfy the "have-nots"? If this were possible, equality of opportunity could be given to the aggressive "have-nots," but not to the other members of the League. Smallish territorial concessions can be made; mandates may be redistributed. A general shuffling of colonial possessions is not on the cards: native dependencies might be willing to get rid of their present masters and be free. They scarcely desire to be handed over to new masters, whose nationalism is exclusive or coercive.

(2) Can the administration of colonies be internationalised in such a way (somewhat perhaps after the pattern of the Saar administration) as to let all the members of the League share not only profits and costs, but work and rule as well? Equalisation of opportunities of this sort would include participation in government as well as in business. It might satisfy claims of all "have-not" members of the League, not only of those of the more aggressive states. As the latter are not very keen on international co-operation and as administrative co-operation between a totalitarian and a liberal bureaucracy, quite apart from national and traditional discrepancies, is rather difficult, a solution on these lines is not very promising. Dependencies would scarcely prefer complex international management to simple national control.

(3) Is the time ripe for winding up all colonial domination, and for transforming it into mandates leading to liberation, to be administrated, not merely supervised, internationally? The answer will be negative, though a positive answer would establish complete equality as to colonial possessions. The

"have-nots" are not interested in counter-colonisation and the "haves" are scarcely willing to add new complexities to colonial administration, without a certainty of "buying peace." They might be willing to give up a mandate to one of the "have-nots," if they can do so without disturbing vested interests and without encountering native opposition. They do not think that the age of counter-colonisation has come to stay.

(4) Can the political control remain where it is, whilst economic opportunities are extended and made safe for the nationals of all countries or at least for the members of the League? It could be done by imposing an improved Congo Act (of the Berlin Conference) or the economic régime of the mandates on all colonies or protectorates. It might, if impartially carried out, satisfy the claims of the "individual's" equality of opportunity, notwithstanding the immanent difficulties of preventing clandestine preferences. It is rather hard for a colonial government to bear the burdens of control single-handed, whilst others profit from its efforts. But it would not be too high a price for disarming jealousy. Would such renunciation satisfy the claims of governments, who want to rule foreign subjects rather than favour their own and who want to be safe rather than wealthy? There is little danger of control of raw materials in time of peace, apart from international monopolies, which fleece all consumers impartially and internationally, and want of exchange for paying for goods. But as long as the risks of war are imminent, no arrangement for securing supplies or markets outside the national territory are really safe. And national supplies, at least for smaller states, are limited. But such arrangements, honestly carried out, might lessen dangers. Whatever may be their doctrines, governments have to face facts; their internal economic problems would be greatly simplified if wider economic facilities were given to their nationals, provided they do not themselves reduce them by import duties. This would be ever so much more important, were the imposition of a "code of international hospitality" not limited to colonies, but accepted by all countries, whatever their status, free states or master-states.

Complete equality of opportunity cannot be established. But something should be done in all directions. The way to growth by territorial expansion is blocked to ambitious nations—but for the mild methods of federation and exchange

of land, the scope of which is limited. Satisfaction of their nationals, through sharing wider commercial opportunities, might offset the dissatisfaction of their governments. It might help to diminish the tension—but it cannot be taken up on a large scale as long as the continuation of political animosities involves the interruption of economic co-operation in case of war.

The Occupations of Fathers and of their Children

By A. L. BOWLEY

SINCE very little is known, at least on a measurable basis, about the relationship of the occupations of children to that of their parents, it is important to place on record any evidence on the subject.¹ The material collected for the New Survey of London Life and Labour contains some relevant information, which is summarised in the tables which follow.

It will be remembered that some 30,000 working-class households were selected throughout London and some contiguous Boroughs, so as to make a fair sample of the whole, and that information was obtained, by personal visits, from the great majority of these about the structure and economic position of the family. Among the questions asked, and usually answered, was the occupation of every working member of the family. We are therefore able to classify the occupations of a great number of children in relation to that of their parents. In all the record is adequate for 6,374 sons and 5,913 daughters.

The results relate, not to all children, but only to those still living with their fathers. In London it is usual for children of working-class families to live with their parents till marriage, except of course in the rather uncommon cases where they go to work outside Greater London or live in hostels. It appears to be less common than in the middle class to go into lodgings or set up a separate household. Hence, except in so far as the age of marriage depends on occupation, the classification is unbiased, though it deals only with a restricted group.

A more serious limitation comes from the fact that most of the children are not yet adult, though there are many cases

¹ For analyses bearing on the subject, see *Journal of the Royal Statistical Society*, February 1912, Chapman & Marquis; *Economic Journal*, 1929 Ginsberg and 1931 Saunders; *Survey of Merseyside*, Vol. II, ch. iv, and *The Measurement of Social Phenomena*, pp. 89 and 227 *et seq.*, Bowley.

where grown-up sons and daughters live with their parents. We have set aside in a separate table children under sixteen years, since their first occupation does not necessarily determine their ultimate status; but there is no certainty that children over sixteen are settled, though perhaps their ultimate social class is fixed.

These considerations make it prudent to deal with broad classes only, and indeed the numbers are too small to allow much sub-division.

In the older generation we paid attention to the occupation of the father only, and considered only those cards where an occupied son or daughter was living with a father whose occupation was known.

The classification of the fathers' occupation is shown in Table III. The division between skilled and unskilled is partly based on wages, but mainly on the amount of training necessary. Five special industries were separated,¹ which together account for about half the skilled group; the rest, comprising a great miscellany of skilled work, were massed together.

The small number of semi-skilled is a residual class, in which the wages or nature of the occupation suggested more training than in the unskilled group, but classification as an artisan seemed to be inappropriate.

Among the unskilled the building industries account for a large proportion, and many of the remainder are dockers, carmen, or porters or warehousemen.

The group termed "Own Account" includes men owning very small businesses, working and selling, and hawkers, etc. The class is miscellaneous, and the earnings, where they are known, range from those of highly skilled to those of casual labour.

In classifying the sons a distinction was made between labourers, stated as such, and other unskilled occupations. Where the work was simply stated as in some factory (*e.g.* chemical works) without any clue as to the operation performed the class "factory" was used; it is probable that the majority of these were employed on simple machines. The semi-skilled class includes such terms as garage-worker, when the wage supplies no clue. Among the skilled the only numerically large group was building. The figures and the data were insufficient to allow any answer to the question

¹ Engineering includes all skilled workers in metals.

"How far does the tendency to follow the father's occupation go?" "Messengers" includes errand boys, who bulk very largely in the group under sixteen years. The middle class includes the small number of adult sons who are teachers, commercial travellers, or who have some other non-clerical occupation which was regarded as middle-class in the New Survey. Those on their "own account" are also usually adults, and frequently taking part in a family business.

Among the daughters the factory class accounts for over 40 per cent. In this there is no attempt to distinguish degrees of skill. Most of the work is attending machines and the wage depends largely on age. The small group of unskilled contains lift girls, messenger girls, etc.

The full data under the headings, as now explained, are given in the four tables at the end. They are compressed in rather arbitrary fashion in the summary tables that follow.

I. SONS, OVER 16 YEARS

FATHERS.	Unskilled. Labourers. Factories. Messengers.	Semi- skilled. Shop Assistants.	Skilled.	Clerks. Middle Class. Own Account.	All.
A					
			<i>Numbers.</i>		
Unskilled	1,525	389	416	260	2,590
Semi-skilled	27	20	11	13	71
Shop Assistants	52	50	43	28	173
Skilled	691	390	855	429	2,365
Own Account	114	77	90	70	351
Total	2,409	926	1,415	800	5,550
B					
			<i>Percentages (horizontal)</i>		
Unskilled	59	15	16	10	100
Semi-skilled	38	28	16	18	100
Shop Assistants	30	29	25	16	100
Skilled	29½	16½	36½	18	100
Own Account	32½	22	25½	20	100
C					
			<i>Percentages (vertical)</i>		
Unskilled	63	42	29½	32½	
Semi-skilled	1	2	1	1½	
Shop Assistants	2	5	3	3½	
Skilled	29	42	60½	53½	
Own Account	5	9	6	9	
	100	100	100	100	

II. DAUGHTERS, OVER 16 YEARS

FATHERS.	Unskilled. Domestic.	Factories.	Waitresses. Shops.	Skilled. Dress, etc.	Clerks. Middle Class. Own Account.	All.
A			Numbers.			
Unskilled ...	201	1,304	306	291	323	2,425
Semi-skilled ...	7	24	6	11	11	59
Shop Assistants	4	52	39	21	49	165
Skilled ...	97	801	336	430	644	2,308
Own Account	19	122	56	78	49	324
Total ...	328	2,303	743	831	1,076	5,281
B			Percentages (horizontal)			
Unskilled ...	8	54	13	12	13	100
Semi-skilled ...	12	41	10	18½	18½	100
Shop Assistants	2½	31½	23½	12½	30	100
Skilled ...	4	35	14½	18½	28	100
Own Account	6	37½	17½	24	15	100
C			Percentages (vertical)			
Unskilled ...	61	57	41	35	30	
Semi-skilled ...	2	1	1	1	1	
Shop Assistants	1	2	5	2½	4½	
Skilled ...	30	35	45	52	60	
Own Account	6	5	8	9½	4½	
	100	100	100	100	100	

The first Part (A) in each table gives the actual numbers, grouped in five classes of the fathers' occupations, and four groups of children's. These may be regarded as unbiased samples of occupied children of any age over sixteen years living with working-class fathers in London and its working-class suburbs.

Part (B) in each indicates the extent to which the children remain in the same occupational grades, broadly defined, as their fathers. Each parental grade contributes to each grade of the children, but in different proportions. Among the sons, nearly three-fifths of the unskilled remain unskilled, while two-fifths are in higher classes. More than half of the skilled remain skilled or have become clerks, but it is remarkable that nearly three-tenths of them have fallen to the unskilled class. The sons of the independent workers are nearly equally

divided between skilled or clerks on the one hand and unskilled or semi-skilled on the other.

Among the daughters, the factory group accounts for a considerable proportion in each parental grade, but this proportion falls as we go up the scale of skill. There is no definite sequence among the shop-assistants and waitresses, but in the last two columns the proportions increase as we go up the parental scale.

In Part (C) we have the percentages contributed to each class in the second generation by the parental groups. The unskilled group comes in the proportion three to two approximately from unskilled and skilled parents; these proportions are reversed among the skilled sons. More than half the clerks come from the skilled class and one-third from the unskilled. So far as the two are comparable, the same remarks apply to the daughters as to the sons.

We can summarise the figures relating to sons as follows: Omitting from the parents shop assistants and independent workers whose grade we do not know, we find that 1,100 sons were in a lower grade than their fathers, 2,400 in the same grade, and 1,500 in a higher grade. The number that has fallen on this method of reckoning is surprising; but it is to be remembered that we have included a considerable proportion of lads under 20 years, whose first occupations are classed as unskilled, but who may work up the scale as they grow older.

Similar tabulations have been made for the Eastern and Western Areas separately, but no significant difference has been found between them.

III. SONS, OVER 16 YEARS

FATHERS.	Unskilled.	Labourers.	Factories.	Messengers.	Semi-skilled.	Shop Assistants.	Skilled : Building.	Skilled : Other.	Clerks.	Middle Class.	Own Account.	Total.
Unskilled :												
Building ...	126	392	92	57	42	104	66	69	63	0	11	1,022
Dockers ...	19	71	18	16	9	19	13	16	17	1	1	200
Carmen ...	32	43	19	27	11	19	4	26	12	1	2	196
Porters ...	37	66	26	19	17	35	18	27	46	1	0	292
Miscellaneous	144	158	96	67	52	81	70	107	91	6	8	880
Semi-skilled ...	9	10	6	2	14	6	1	10	13	0	0	71
Shop Assistants	8	22	10	12	7	43	15	28	25	1	2	173
Skilled :												
Building ...	25	56	28	14	17	56	100	38	54	3	1	392
Engineering	39	39	22	10	25	35	95	42	60	2	2	371
Printing ...	10	18	8	2	6	4	43	13	26	1	1	132
Other artisans	6	5	9	1	1	5	11	14	18	1	2	73
Motor drivers	34	17	21	17	17	22	29	64	47	1	2	271
Others ...	99	107	69	35	83	119	136	270	179	14	15	1,126
Own Account	34	50	18	12	20	57	40	50	42	4	24	351
Total ...	622	1,054	442	291	321	605	641	774	693	36	71	5,550

IV. DAUGHTERS, OVER 16 YEARS

FATHERS.	Unskilled.	Domestic.	Factories.	Waitresses.	Shop Assistants.	Dress, etc.	Skilled.	Clerks.	Middle Class.	Own Account.	Total.
Unskilled :											
Building ...	17	74	515	30	82	73	5	78	0	1	875
Dockers ...	0	6	145	1	10	18	1	24	1	0	206
Carmen ...	7	14	111	5	24	27	1	12	1	0	202
Porters ...	5	20	108	7	25	36	5	51	0	4	261
Miscellaneous	12	46	425	27	95	113	12	147	3	1	881
Semi-skilled ...	1	6	24	1	5	10	1	11	0	0	59
Shop Assistants...	0	4	52	6	33	17	4	48	1	0	165
Skilled :											
Building ...	3	21	159	15	36	56	7	89	2	0	388
Engineering ...	3	3	118	7	43	52	3	108	2	3	342
Printing ...	1	3	41	2	20	23	5	39	3	0	137
Other artisans	1	4	25	0	10	6	1	16	1	1	65
Motor drivers	4	11	92	8	38	30	5	82	1	0	271
Others ...	3	40	366	24	133	225	17	287	6	4	1,105
Own Account ...	5	14	122	8	48	68	10	46	3	0	324
Total ...	62	266	2,303	141	602	754	77	1,038	24	14	5,281

V. SONS, UNDER 16 YEARS

FATHERS.	Unskilled.	Labourers.	Factories.	Messengers.	Semi-skilled.	Shop Assistants.	Skilled : Building.	Skilled : Other.	Clerks.	Middle Class.	Total.
Unskilled :											
Building ...	19	13	18	78	4	12	3	10	5	1	163
Dockers ...	4	5	5	23	2	3	1	0	0	0	43
Carmen ...	8	0	6	10	0	1	1	2	1	0	29
Porters ...	6	3	6	16	2	8	1	3	8	0	53
Miscellaneous	21	6	20	50	6	10	4	9	19	0	145
Semi-skilled ...	0	0	0	4	0	0	1	2	0	0	7
Shop Assistants...	1	3	0	9	0	3	3	1	2	0	22
Skilled :											
Building ...	7	1	5	19	2	1	2	2	6	0	45
Engineering ...	8	0	6	11	1	1	6	1	11	0	45
Printing ...	2	0	2	2	1	3	0	0	1	0	11
Other artisans	1	0	2	1	0	0	0	0	2	0	6
Motor drivers	3	1	6	16	2	3	7	2	6	0	46
Others ...	22	1	7	53	9	8	7	24	23	1	155
Own Account ...	8	0	3	15	3	6	2	7	10	0	54
Total ...	110	33	86	307	32	59	38	63	94	2	824

VI. DAUGHTERS, UNDER 16 YEARS

FATHERS.	Unskilled.	Domestic.	Factories.	Waitresses.	Shop Assistants.	Dress, etc.	Skilled.	Clerks.	Total.
Unskilled :									
Building...	6	4	103	0	8	16	0	9	146
Dockers ...	1	1	18	1	2	4	0	0	26
Carmen ...	4	1	22	0	3	4	0	3	37
Porters ...	1	1	26	0	1	7	3	3	42
Miscellaneous	3	3	74	2	5	9	2	6	104
Semi-skilled	0	1	3	1	1	2	0	0	8
Shop Assistants	0	0	5	0	2	4	0	2	13
Skilled :									
Building...	1	1	19	0	8	3	0	2	34
Engineering ...	0	0	17	0	8	5	0	2	32
Printing...	0	0	6	0	0	0	0	2	8
Other artisans	1	0	3	0	1	1	0	1	7
Motor drivers	1	0	12	0	8	3	0	8	32
Others ...	3	2	54	0	14	16	1	16	106
Own Account ...	0	0	21	0	7	7	0	2	37
Total ...	21	14	383	4	67	81	6	56	632

Fathers. The division between unskilled, semi-skilled and skilled is based partly on occupation and partly on wages when the occupation is not well defined. Those industries are given separately which are fairly well defined and include considerable numbers.

The semi-skilled class includes occupations for which a modicum of special training is necessary, such as storekeepers, furnace-men and stewards on ships, and a small number of imperfectly defined occupations where the wage is above 60s.

Shop assistants exclude those in any superior position who are ranked as middle class in the New Survey.

Motor and bus drivers are classed as skilled. In only a few trades were there any large number of cases, so that most of the skilled are massed together.

Persons classed as working on their own account include repairers, boot-makers, carpenters, etc., who work to order, small shopkeepers, street traders, etc.

Sons. "Unskilled" are those with low wages, such as waiters, postmen, cleaners, watchmen, while "labourers" are attached to building, docks, etc., or described simply as labourers. Factory operatives are classed together, unless they are definitely skilled or definitely labourers. Messengers include a great number of errand boys.

Under skilled, the five industries separately named for fathers are merged together.

The middle class includes the occupations so defined in the New Survey; clerks are separated; the remainder include teachers, commercial travellers, and others.

Daughters. The residual classes unskilled and skilled include small groups not otherwise classified. In the former are lift-girls, messenger and errand girls, etc.; in the latter hairdressers, hand-bookbinders, photographers, and others where training is necessary.

"Clerks" include typists, cashiers, telephone operators and employees in the post office.

The tabulation was carried out from the original cards by Miss K. C. Smith and Miss V. Martin.

The Pig Cycle: A Reply

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ONE of the most clearly defined and closely studied phenomena in the movement of agricultural prices in Great Britain has been the recurring cycle in the prices and numbers of pigs. This cycle had seemed to be adequately explained by the "cobweb theorem." The cycle has generally been attributed in most of the important pig-producing countries to the time which producers take to expand or contract production when faced by a particularly favourable or unfavourable ratio of pig prices to the prices of the more important feeding stuffs used for pigs, and to the fact that most individual producers forget that others will act in the same way as they themselves. Messrs. Coase and Fowler have criticised this analysis on three main grounds.¹ Firstly, they question the use of the ratio of pig prices to feeding-stuff prices as a measure of the stimulus given to increase or decrease the number of pigs. Secondly, they contend that, if farmers react immediately to changes in the profitability of pig feeding, the cycle would have a two-year period instead of the three and a half to four-year period actually observed. Finally, they attempt to show statistically that pig producers do not, in fact, expect existing pig prices and costs to remain unchanged.

Having thus rejected the essential points in the explanation which was accepted by the Reorganisation Commission for Pigs and Pig Products,² they suggest that the true explanation of the cycle in this country may rest in the variations of demand, and in the response of foreign producers to price changes. They have not yet indicated how these factors can cause a cyclical fluctuation of the observed period, nor is it easy to see how they can have this effect. Messrs. Coase

¹ R. H. Coase and R. F. Fowler, *Bacon Production and the Pig-Cycle in Great Britain*, *ECONOMICA*, May 1935.

² *Report of the Reorganisation Commission for Pigs and Pig Products*, 1932, Ministry of Agriculture and Fisheries, Economic Series, No. 37, pp. 13-14.

and Fowler ignore that what an explanation of the pig cycle must offer is not mainly a reason for an alteration in profits, but a reason for the periodically recurring fluctuation. They have, in effect, tried to overthrow the existing explanation, without putting anything in its place.

This reply shows that, though the analysis accepted by the Reorganisation Commission may be open to criticism in certain of its details, yet, in essentials, it does explain the course of the pig cycle. The objections made to it are, almost always, either invalid or unimportant.

Messrs. Coase and Fowler criticise the use of the ratio of the prices of pigs to those of feeding stuffs on the grounds that "the important factor must be the profitability of pig production."¹ In their analysis they substitute for this ratio an estimate of the average monthly profitability of producing first-quality bacon pigs, derived by subtracting from the price of a 9-score bacon pig in any month the price of the feeding stuffs consumed by it and its sow during the preceding twelve months. This method is open to several objections.

Firstly, the weight and age selected—9 score and eight months—are greater than the weight and age at which first-quality baconers are sold. The prices of first-quality baconers published in *The Agricultural Statistics* correspond most nearly to those of Class 1 pigs under the Pigs Marketing Scheme, which weigh from 7 score to 8 score 10 lb. It is more accurate, probably, to take the price of a $7\frac{1}{2}$ -score first-class baconer, sold at seven months, less feeding costs for eleven months. This amendment is a minor one, but, as it modifies some of their subsequent conclusions, it should be noted.²

More serious is the use of the *realised* profit on a pig as a guide to future production policy. What the farmer is concerned with when he frames his production policy is the profit which he can *expect* in future. His past profits, being of the nature of a realised quasi-rent on his investment in pig production, may be substantially different from those which he can reasonably expect to obtain in future. If profits of pig production as a whole are high because feeding stuffs were cheap some months before, and if feeding stuffs have subsequently risen in price, then the farmers will not expect the high profits to be repeated, and will not expand production. Similarly,

¹ Coase and Fowler, *op. cit.*, p. 150.

² In particular it reduces the apparent fluctuation in feeders' profits to the level of the fluctuation shown in breeders' profits (p. 158).

if the pig feeder has done well because he was able to buy his store pigs cheap four months before, and if store-pig prices are now higher, the realised past profit will not be a factor tending to encourage feeding in future.

This criticism, however, while it can be applied to the analysis actually presented by Messrs. Coase and Fowler, is not a valid defence of the use of the price ratio of pigs to feeding stuffs instead of the profit margin. For it is possible to calculate an expected profit margin, on the assumption that farmers expect prices and costs to remain unchanged, or to change in any plausible manner. The use of the expected profit margin instead of the actual profit margin is not open to the above criticism. This alteration affects less the profit margin on both breeding and feeding than the profit margins on each of the operations taken alone. In the latter the months of maxima and minima are shifted.

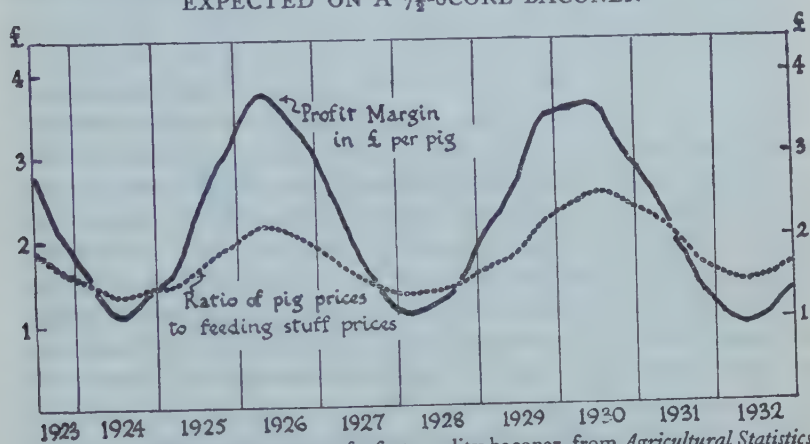
When these points have been rectified the choice between the price ratio and the profit margin must rest on which of them measures better the actual factor which determines output. This factor must be the relative level of the anticipated profit margin on investment in pig production, compared with the profit margin which could be obtained in alternative forms of investment. Now the main difference between the two measures is that the price ratio will appear the same when the prices of both pigs and feeding stuffs are high, or when they are both low, while the profit margin will give a higher figure when prices are high than when they are low, if the ratio between prices and costs is equal in both cases. Now when prices in general are high the money return to be expected from alternative occupations will be higher than when prices are low. Thus, the use of the profit margin will exaggerate the stimulus given to pig production in periods of high prices. This fault is avoided if the price ratio is taken. It would seem, thus, that there is as much theoretical justification for using, as a measure of the stimulus given to pig production, the ratio of pig prices to feeding-stuff prices, as the difference between pig prices and feeding-stuff prices.

In practice it is almost immaterial which is used. As Diagram I shows, the two measures have moved very closely together. The two twelve-month moving averages,¹ which smooth out erratic month-to-month fluctuations, though they fluctuate to different extents, reach their peaks and depressions

¹ Centred on the seventh month.

DIAGRAM I

TWELVE-MONTH MOVING AVERAGES OF THE RATIO OF BACON PRICES TO FEEDING-STUFF PRICES, AND OF THE PROFIT MARGIN EXPECTED ON A $7\frac{1}{4}$ -SCORE BACONER



The Ratio is the price per score of a first-quality baconer, from *Agricultural Statistics*, divided by the price of 1 cwt. of feeding stuffs.

The Profit margin is the price of a first-quality $7\frac{1}{4}$ -score baconer, minus the cost of feeding the baconer and its share of the weaner's food for eleven months, at existing feeding-stuff prices.

at the same moment, and move upwards at the same rate. Thus, the time lag in the reaction of pig numbers will appear to be the same whether it be taken in relation to the ratio of pig prices to feeding-stuff prices, or in relation to the profit margin calculated on the existing prices of pigs and feeding stuffs.

The second criticism of Messrs. Coase and Fowler rests on a more fundamental difference. They maintain that if, in fact, producers expect present prices and costs to remain unchanged, and plan their production accordingly, then the cycle would have no more than a two-year period, instead of the four-year period actually observed.¹ They do not contest that, in fact, the period is one of nearly four years, but they suggest that the analysis used to explain it is fallacious. They base this view on the belief that "since the period of gestation is four months and the average age of baconers at slaughter is eight months, there must inevitably be a time lag of not less than twelve months before the reaction of farmers to the changed price-cost relationship can bring about the required fall in the price of pigs."² They thus tacitly assume that, directly the increased number of pigs comes forward and prices begin to

¹ Coase and Fowler, *op. cit.*, p. 159.

² *Op. cit.*, p. 145.

fall, producers will at once cause a smaller number of sows to be served.

This, in fact, is not so. When prices fall producers will keep fewer gilts for replacement purposes, and cull off more old sows. But at the same time, it will not be worth their while to cease to breed from the younger sows which are available, since these have been diverted as gilts from the bacon market at a period when prices were more favourable. It will pay to go on breeding from sows which have already had from one to five litters at a price at which it would not pay to breed from gilts for the first time. For, if the sow is not used for breeding, it must either be slaughtered or left barren. If slaughtered it will fetch only fat sow prices, which averaged during the ten years 1923-32 4s. 2d. per score, or 27 per cent., less than a first-class baconer.¹ There are, therefore, levels of pig prices at which it would not be profitable to kill a sow, though it would be better to kill a gilt for bacon rather than to breed from it.

If left barren for six months the sow must be fed during this period. Now, the maintenance ration of a barren sow of 300 lb. is about 3 lb. per day, or approximately 5 cwt. for six months—the shortest normal interval between litters.² The Reorganisation Commission for Pigs and Pig Products estimated the consumption of food by a sow during the period of pregnancy and suckling at 12 cwt.³ Consequently, the additional cost of using a sow for breeding, as compared with keeping it barren, is only seven-twelfths of the total cost. Further, sows which have missed a service are sometimes more difficult to breed from in future. For both these reasons it is not a paying proposition to keep sows barren rather than to cull out old sows. Thus, it would be surprising if farmers actually adopted the policy attributed to them by Messrs. Coase and Fowler,⁴ of using sows at under-capacity when prices are low, and breeding from them again when prices improve. More damaging still to this argument is the indisputable fact that, in practice, farmers do not maintain a stock of barren sows in anticipation of some period when prices may improve.⁵

¹ From *The Agricultural Statistics*.

² T. B. Wood, *Animal Nutrition*, University Tutorial Press Ltd., p. 155.

³ *Report of the Reorganisation Commission for Pigs and Pig Products*, p. 36.

⁴ Coase and Fowler, *op. cit.*, p. 146.

⁵ The evidence which Messrs. Coase and Fowler adduce in support of this contention—that the proportion of sows to the existing pig population and to the pig population

It is thus clear that it may pay to continue to breed from sows when it would not pay to bring gilts into breeding, because it is expensive to maintain barren sows, and because fat sows on slaughter realise a lower price per score than gilts. The effect of this on the pig cycle is shown by the following hypothetical table, giving the ratios of the number of sows of different ages served at different points in the price cycle. The figures are clearly only approximate, but accord with experience. Slight modifications, moreover, would not affect the result, which depends essentially upon the assumptions, which are in accord with practice, that sows normally have about six litters, at intervals of six months or rather longer, and that low pig prices lead to drastic culling of old sows which have had five litters. In so far as the actual time between litters exceeds six months the period of the cycle will be extended.

A reasonable assumption is that the ratio of the number of pigs served for the first time near the bottom and at the top of the pig price cycle is as 7 : 40, and that as prices rise from depth to peak during a period of rather under two years the number served for the first time increases at a constant rate. Thus, at the peak of the cycle, there will be 40 gilts being served for the first time at from 8-12 months, 29 sows who have had their first litter six months before and are ready to be served for their second, 18 sows ready to be served for their third litter, 7 for their fourth, 7 for their fifth, and 18 for their sixth. For prices will have been at their minimum some twenty-one months before the peak, so that the number of gilts served eighteen and twenty-four months before the peak will be fewer than those served twelve and thirty months before the peak. Sows which have had six litters will be slaughtered, as six litters is approximately the capacity of a sow. As prices are so favourable at the peak no sows will be slaughtered before they have had their sixth litter; thus, a total of 119 sows will be served at the peak of the cycle.

Six months later prices will have fallen to about the level they after twelve months varies—is invalid. Clearly, the proportion of sows to the total pig population in any year must vary from year to year, since an increase in sows must precede an increase in the number of other pigs. If all pigs were sold as baconers the number of sows might show a constant proportion to the number of pigs a year later, provided that the baconers were sold at rather a late age. But, as a number of pigs are sold as porkers at four months old, many of the progeny of sows enumerated in one census will have been slaughtered by the next census. Thus, as the number of pigs varies there seems no reason to expect a constant proportion of sows to the total pig population.

				Number of months from peak of price cycle.							
				0	6	12	18	24	30	36	42
				Number of sows served.							
Ages	8-12 months	...	40	29	18	7	7	18	29	40	
"	14-18	"	29	40	29	18	7	7	18	29	
"	20-24	"	18	29	40	29	18	7	7	18	
"	26-30	"	7	18	29	40	29	18	7	7	
"	32-36	"	7	7	18	29	40	29	18	7	
"	38-42	"	18	5	3	0	0	15	17	18	
Total	...	...	119	128	137	123	101	94	96	119	

held six months before the peak of the cycle. Twenty-nine gilts will thus be served for the first time, while all the sows which have had from one to four litters will be served again. Since prices have fallen, however, 2 of the sows which have had five litters, as well as all the sows which have had six litters, will be slaughtered. Thus, 128 sows will be served in all. Twelve months after the peak 18 gilts will be served for the first time, while 4 of the 7 gilts which have had five litters will be killed, giving a total of 137 sows served.

It is at this point in the cycle that Messrs. Coase and Fowler would apparently expect prices to reach their maximum, if farmers determined their production policy in the light of existing price/cost relationships. Eight or nine months after the peak of the price cycle the progeny of the 119 sows served at the peak would be coming on the pork market.¹ But fourteen and twenty months after the price peak the the progeny of the 128 and 137 sows served twelve and eighteen months after the price peak will be coming forward. Thus, prices will continue to fall for twenty months after the price peak.

Since prices will still be falling eighteen months after the peak and will be very low, fewer breeding stock will be used. Only 7 gilts will be served for the first time, while all the sows which have had five litters, as well as those which have had six will not be served again and will be slaughtered. Eventually the smaller number of gilts served and the heavier rate of culling will have had its effect. Only 123 sows will be served in all, compared with 137 six months previously.

¹ Since the prices of baconers and porkers move closely together and since about 70 per cent. of the pigs slaughtered in Great Britain were used for pork, the arrival of pigs on the pork market has a marked effect on the length of the cycle. The period of gestation is four months, and porkers are usually sold at from four to five months old.

Thus, the peak in the number of sows served comes some twelve months after the peak in prices, and the maximum number of pigs come on the pork market, bringing the minimum of prices, some twenty to twenty-one months after the price peak.

Therefore, twenty-four months after the peak prices will be rising again, and will be about equal to prices eighteen months after the peak. At this stage 7 gilts will be served for the first time, and all sows which have had five litters will be slaughtered.

As prices continue to rise more gilts will be served for the first time, and fewer sows culled before their sixth litter. Between thirty and thirty-six months from the price peak the increase in the number of young and old sows served will outweigh the small number of middle-aged sows available owing to the few gilts brought into use for the first time when prices were very low. Some thirty-three months after the price peak the total number of sows served will be at its minimum, giving a minimum number of pork pigs available about forty-two months after the previous price peak. Thus, the cycle will have run its course in about forty-two months, and the age distribution of the sow population will be the same as it was at the previous peak.

Thus, if it be accepted that a pig, once it has been used for breeding, will not be discarded until it has had five or six litters, there is no difficulty in explaining why the pig cycle takes four years instead of two, even though producers respond immediately to a changed price/cost relationship. For such response will only show itself in changes in the numbers of gilts served, and in the number of old sows culled. Once a pig has been bred, its normal productive period is about three years.

Further support to this explanation is given by the ratio of the minimum to the maximum number of sows served. The ratio of the minimum to the maximum number of brood sows in Great Britain from 1923 to 1933 was 319 : 475, or 1 : 1.48, compared with a ratio in the hypothetical table of 94 : 137, or 1 : 1.46.

It would thus appear that, if farmers look at existing price/cost relationships, then the physiological characteristics of the pig, coupled with a lower consumer demand for bacon or pork made from sows than for that obtained from gilts, must result in a four-year cycle in pig prices. Therefore, since such

a cycle undoubtedly exists, this is evidence that farmers do act in this way. It is not, however, necessary for this theory that farmers should assume that existing price and cost relationships should remain *unchanged*. It is only essential that they should expect them to continue to diverge from the normal in the same direction as they do at the existing moment, and *proportionately* to the actual divergence. The only difference will be that, if it be assumed that they expect the actual relationships to be maintained, then the elasticity of supply to any change in the expected price will appear to be less than if it be assumed that they expect prices to approach nearer to the normal. For instance, Dr. K. A. H. Murray has shown that a change of 0.1 points in the ratio of the price per score of a first-quality baconer to the price of 1 cwt. of feeding stuffs will, in general, be followed by a change in the same direction in pig numbers 21 months later of 93,528.¹ If it were assumed that farmers expected the ratio to remain only half as much above or below normal as its existing position, then it would appear that any change of 0.1 points in the *expected* ratio would be followed by a change in the same direction in pig numbers of 187,056. The elasticity of supply would appear to be twice that of the former case, but the actual price cycle would be unaffected.

Messrs. Coase and Fowler, however, consider that "the conclusions reached by the Pig Commission would follow only if farmers assumed that prices and costs would remain unchanged."² They then attempt to show that pig feeders certainly do not make this assumption, and that therefore pig breeders probably do not. Their method of approach is novel and suggestive. They subtract from the price of a 9-score baconer in any month the price of a 3 months' old store pig in the same month, and the cost of feeding such a pig for five months at the existing level of feeding-stuff prices.

They argue that, if the store market were competitive, and if feeders expected present prices and costs to continue, then the profit margin so calculated should be about constant, since feeders would bid up the prices of stores until the profit to be expected from feeding was no more than normal. In fact, the profit margin so calculated shows wide variations, corresponding with the pig price cycle (Diagram II, p. 421).

¹ K. A. H. Murray, *The Future Development of the Pig Industry in Great Britain*, *Empire Journal of Experimental Agriculture*, Vol. I, No. 3, September 1933, p. 218.

² Coase and Fowler, *op. cit.*, p. 146.

Messrs. Coase and Fowler therefore conclude that, in fact, feeders do not expect present prices and costs to continue. When prices are high they expect them to fall, and when they are low, to rise.

The method is elegant, and the conclusion almost certainly sound. For while the assumptions on which it is based are only partially fulfilled in practice, the modifications which must be made to them leave the conclusions only slightly affected in most cases, and actually strengthen them in one.

A first modification is necessary, since, in fact, the price of feeding stuffs represents only from 75 to 90 per cent. of the costs of producing a pig, and since many pigs are fed largely on by-products such as broken or poor-quality grain, under-sized potatoes or skim milk. As the number of pigs bought for feeding increases it becomes increasingly more inconvenient and expensive to fit them into the existing organisation of the farm, while an increasingly large proportion of them must be fed, at greater cost, on purchased foods rather than on by-products. Consequently, as the number of pigs sold to feeders increases, the costs of feeding rise more than the prices of purchased feeds. Therefore, when the number sold is high, the profit margin calculated in the above manner is too large compared with the calculated profit margin when numbers are low. Now, on the whole, the number of store pigs sold tends to be at its minimum when the calculated profit margin is at its maximum. The fluctuations in the margin are thus smaller, not larger, than they would be if this factor were taken into account.

The method has been based, secondly, upon the assumption that the market for store pigs is competitive. It would not, however, appear that imperfect competition need necessarily invalidate the argument that the profit margin should be constant if present prices and costs are expected to persist. An examination of the relevant curves shows clearly that even though the supply curve of store pigs to any individual producer is not perfectly elastic, yet, if the number of store pigs available is fixed—as it would be at any moment—then an increase in the demand for stores will raise store-pig prices by the same amount, provided the slopes of the two curves remain unaltered.

The method depends, finally, upon the adequacy of the price series to measure the price of a baconer and of a store pig

at the ages quoted. It has already been indicated¹ that a first-quality baconer is more often sold at $7\frac{1}{2}$ score and seven months, than at 9 score and eight months. The profit margin calculated on the younger and lighter pigs shows, however, fluctuations in the same direction, though of lesser magnitude, than the profit margin calculated on the heavier pig.

The cost of feeding pigs is based on the amounts of feeding stuffs consumed between the ages of three months and the sale of the pig as a baconer. For this method to be accurate it is necessary not only that three months should be the average age at which a store pig is sold in the markets quoted, but also that the divergences of the individual ages about three months should not be large. For since a pig consumes more feed in its fourth than in its third month, two pigs bought at two and at four months respectively would consume more feed than two pigs both purchased at three months.

Now the price of store pigs used is the average of the prices of pigs aged from 8-12 weeks and from 12-16 weeks at some thirty markets in Great Britain quoted in *The Agricultural Statistics*. These prices are the average of very different individual prices. At twelve of the more important of these markets,² the annual average price, expressed as a percentage of the annual average price for all markets, showed a mean divergence from this average, between 1926 and 1933, of 8.3 per cent. for store pigs of from 8-12 weeks, and of 7.7 per cent. for store pigs of from 12-16 weeks. The extreme range of annual price differences was, for pigs from 8-12 weeks, from 19 per cent. below the annual average price at Northampton in 1929 to 25 per cent. above at Ipswich in 1931, and for pigs from 12-16 weeks, from 18 per cent. below the average at Northampton in 1928 to 25 per cent. above at Ipswich in 1931 and Derby in 1933.

It is probable that a large part of this variation in prices between markets was due to the different ages at which pigs were sold in the different markets. For, especially in the prices for the younger category of pigs, there was a definite tendency for prices to be consistently above or below the average in any one market. Thus, prices in the 8-12 weeks' group at Doncaster, Northampton and York were consistently

¹ See page 409.

² Ashford, Derby, Doncaster, Exeter, Gloucester, Ipswich, Leicester, Northampton, Norwich, Preston, Shrewsbury and York. Prices were extracted from *The Agricultural Market Report*.

below the average, and those at Derby and Preston consistently above. In the 12-16 weeks' group prices at Northampton were generally below the average, and those at Derby and Doncaster generally above. Part of the variation, however, may have been due to imperfect competition.

There is thus reason to doubt whether the bulk of store pigs for which prices are quoted were sold at three months. The error introduced by this variation is not, however, likely to be large. According to the figures used by Messrs. Coase and Fowler¹ a pig consumes 0.023 tons of feed in its third month, and 0.044 tons in its fourth. Even if half the stores were bought at two months and half at four months, the excess in feeding stuffs allowed for by assuming that all were bought at three months would be only 0.011 tons per pig or some $3\frac{1}{2}$ per cent. of the total food consumed by a pig between three and seven months. Actually, of course, the dispersion of ages would be less than this. Moreover, even if less feeding stuffs were allowed per pig, the profit margin would still continue to fluctuate.

Thus there are grounds for questioning whether the profit margin on feeding pigs, calculated by subtracting from the present price of a baconer the present price of a store pig, and the cost of feeding it at present feeding-stuff prices until it becomes a baconer, should be constant, even if feeders expect present prices and costs to continue. These grounds are the variation in profits from alternative occupations, mentioned by Messrs. Coase and Fowler, the existence of costs other than of feeding stuffs, which increase with the number of pigs fed, and the increased dependence on purchased feeding stuffs as more pigs are fed. There are also grounds for questioning the adequacy of the prices available for store pigs for the purpose to which they have been put, and the degree of competition prevailing in the market for store pigs. It would not appear, however, that any of the modifications necessitated by these deficiencies in the assumptions would serve to eliminate the apparent fluctuations in the profit margin. Feeders' apparently expected profits would still be high when pig prices were high, and low when pig prices were low. It is thus reasonably certain that pig feeders expect prices to fall when they are exceptionally high, and to rise when they are exceptionally low.

This, however, does not invalidate the theory of the pig

¹ Coase and Fowler, *op. cit.*, p. 152.

cycle put forward by the Reorganisation Commission for Pigs. It has already been shown that this theory would remain totally unaffected if pig producers expected prices to approach more nearly to the average than they do in fact, provided the expected fluctuations in prices and costs were in the same direction as, and proportionate to, the actual fluctuations. Further, since the pig cycle does exist, it is extremely probable that producers do expect this.

A further support for this contention can be obtained by an extension of Messrs. Coase and Fowler's method. The average profit margin on feeding pigs from 1923 to 1932, calculated by subtracting from the price of a first-quality $7\frac{1}{2}$ -score baconer the price of a three-month-old store pig, and the cost of feeding it for the next four months at present feeding-stuff prices, was £1 per pig. If this be taken as a measure of normal expected profits, and if it be assumed that farmers expect present feeding-stuff prices to remain unchanged,¹ then the price which they expect to get for a bacon pig may be calculated by adding to the present price of a three-month-old store pig the cost of feeding it until it is seven months old, plus a profit margin of £1 per pig. For the price of a store pig would be bid up until the expected profit margin was normal.

This method is open to all the criticisms which were made of the method as originally used by Messrs. Coase and Fowler. Its results must therefore be highly tentative. In Diagram II the expected price of a $7\frac{1}{2}$ -score baconer is plotted, together with the actual price obtained from 1923 to 1932.² It is clear that, with the exception of the early months of 1926, the two have moved together. The extent of the fluctuation has been different, since expected prices have moved less than actual, but the phase has been similar. No tendency appears for expected prices to fluctuate with actual prices four or five months later, as would happen if pig feeders foresaw the actual course of prices.

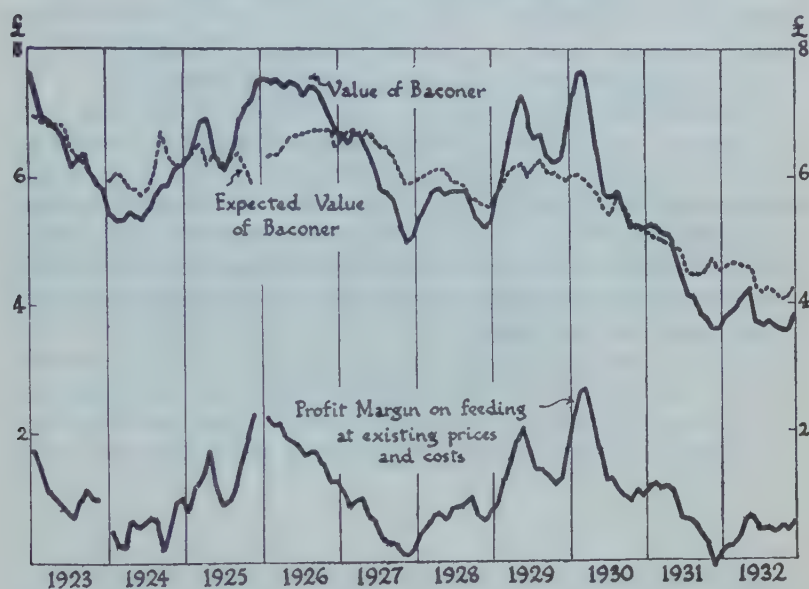
Thus, although Messrs. Coase and Fowler have shown that pig feeders do not expect present prices and costs to persist, they have not disproved the explanation of the pig cycle put forward by the Reorganisation Commission. They suggest

¹ This is a reasonable assumption, since foods are often purchased in advance. Moreover, little difference would be made to the calculation if different assumptions were made.

² In the years before and after this period it is especially unreasonable to expect a constant profit margin, owing to the unprofitability of other occupations.

DIAGRAM II

ACTUAL AND EXPECTED VALUES OF A $7\frac{1}{2}$ -SCORE BACONER, AND THE EXPECTED PROFIT MARGIN ON FEEDING, IF PRESENT PRICES AND COSTS CONTINUE UNCHANGED



that farmers miscalculate the future direction of prices and costs, but do not explain what the type of miscalculation is. What is needed is an explanation why farmers make the same mistake in estimating the future, out of so many possible errors. This explanation is provided by the assumption that, although farmers may expect especially favourable existing prices to become less favourable, or especially unfavourable ones to become less unfavourable, they believe that very high prices will still remain above normal, and very low prices below normal. Their view of future prices and costs corresponds with existing prices and costs in phase, but shows a lesser variation from peak to depth.

The existing relationship of prices and costs thus provides an immediate stimulus to producers to expand or contract production, since they disregard future prices, and the action of other producers. Owing, however, to the time which must elapse between the diversion of a gilt from the bacon market and the arrival of its progeny on the pork market, and owing to the fact that once a sow has been used for breeding at least five or six litters will be taken from it, a lag of about twenty-

one months occurs between the peak in prices and the appearance of the maximum number of pigs on the pork market. Thus, the self-perpetuating cycle engendered by farmers basing their production policy on existing price/cost relationships becomes, owing to the physiological characteristics of the pig, one of rather under four years in length.

It would thus appear that the explanation of the pig cycle put forward by the Reorganisation Commission is essentially correct. To accept their explanation does not, however, imply agreement with their practical proposals. We should entirely agree with Messrs. Coase and Fowler that the "fluctuations in profits which do occur are short-run deviations from a correct trend,"¹ and that to stabilise production would cause long-term deviations from this trend.

¹ Coase and Fowler, *op. cit.*, p. 164.

The Pig-Cycle: A Rejoinder

By R. H. COASE and R. F. FOWLER

THE criticisms which Miss Cohen and Mr. Barker make of our paper relate solely to the theory of the pig-cycle. There is no dispute regarding our criticism of the recommendations of the Reorganisation Commission. In their reply, however, they defend both the methods previously used in investigating the problem of the pig-cycle, and the conclusion reached by such investigations that the pig-cycle can be explained by the "cobweb theorem." We believe that the criticisms made by Miss Cohen and Mr. Barker of our arguments are invalid.

I

The first problem which arises is one purely of technique. Miss Cohen and Mr. Barker point out that what the pig farmer is concerned with is the profit he can *expect* in the future and that he may well consider that future profits will be different from those which he is now receiving. This is undoubtedly true and is fully in accord with the analysis in our paper. As we said, "the important factor in determining the farmers' breeding policy is the relationship between the estimated future price and the estimated costs of feedstuffs during the next twelve months" (p. 146). Since, however, the whole problem of why there is a pig-cycle is to discover how farmers forecast we have to examine the different assumptions which may be made regarding the nature of these forecasts. One of these assumptions (the "cobweb theorem") is that farmers believe that present prices and costs will remain unchanged in the future. This we examined and rejected. The reason why we worked out an estimate of variations in actual profits was that we wished to examine the relations between the actual profitability and production policy. We felt that we had found some relationship between variations in these profits and production. This we discussed at length in our paper. Our consideration of actual profits brought out the

importance of distinguishing between breeders and feeders since we showed that their profits do not vary together. From the point of view of practical policy a knowledge of the actual course of profits is of fundamental importance.

This criticism of our use of actual profits, as Miss Cohen and Mr. Barker point out, "is not a valid defence of the use of the price ratio of pigs to feeding stuffs instead of the profit margin." This defence, however, they attempt to make. They state that "the choice between the price ratio and the profit margin must rest on which of them measures better the actual factor which determines output." Since profits equal receipts *minus* costs, we are very doubtful of the significance for production policy of an index which consists of receipts *divided* by costs. Miss Cohen and Mr. Barker suggest that the price-cost ratio gives a better idea of the relative profitability than a profit margin because "when prices are higher, then this means that the money return to be expected from alternative occupations is higher." But is this so? Surely, an increase in the price-cost ratio resulting from a decline in prices and costs is not sufficient evidence by itself of a decline in profits to be obtained in alternative occupations. Even if profits do fall elsewhere they may fall more or less rapidly and the use of the ratio alone would be misleading as an indication of relative profitability. It is clear that when one is considering movements in "profits," one must at the same time take into account profits in alternative occupations. Since, however, it is profitability in which one is interested and since this is definitely receipts *minus* costs, we consider that an index which is intended to reflect changes in profitability should be put in this form. Direct investigation of the movement of profits in alternative occupations is necessary whatever index of profitability is used. It seems to us, therefore, better to work with a "profit" margin rather than with a price-cost ratio.¹

II

Secondly, there is the question of the length of the cycle. We were unable to reconcile the assumptions of the "cobweb

¹ We have worked out a "profit" margin on the production of hogs in the United States for the years 1920-7. In three separate years—1921, 1924, and 1925—the divergence between the movements in the "profit" margin and in the Corn-Hog Ratio was considerable. This suggests that the use of the Corn-Hog Ratio as an indication of changes in profitability is likely to be defective.

theorem " with the statement that the length of a complete cycle is just under four years. Miss Cohen and Mr. Barker attempt to explain the forty-two months' cycle by pointing out that "it will pay to go on breeding from sows which have already had from one to five litters, at a price at which it would not pay to breed from gilts for the first time." This of course is perfectly true. When, however, they attempt to use this proposition to explain why the cycle is of this length they are immediately involved in a contradiction. The numerical example which they give to illustrate their argument *does* in fact include every year a certain number of gilts which are served for the first time. If, however, the price is such that "it would not pay to breed from gilts for the first time although it does pay to breed from sows which have been already served," why is it that following a fall in profits, twenty-nine and eighteen gilts are served rather than the minimum of seven? If the number served at six months after the peak in prices is nineteen or less there is an immediate reduction in the number of sows served and consequently in the subsequent pig population.¹ The assumed increase in the total number of sows served is due not to the point mentioned by Miss Cohen and Mr. Barker but to the fact that, in spite of the fall in profits, gilts are assumed to be brought to service for the first time. Whether or not it may pay to use sows which have already been served once or more, although it may not pay to bring new gilts to service, is irrelevant. The assumed increase in the total number of sows served is due to the fact that Miss Cohen and Mr. Barker have quite arbitrarily chosen a number of gilts served for the first time six months after the peak in prices in excess of 50 per cent. of the maximum number of gilts served. Undoubtedly, if farmers act in the way assumed by Miss Cohen and Mr. Barker, a four-year cycle will result. They do not explain, however, why farmers should be assumed to act in this way, which is the problem we are considering. Miss Cohen and Mr. Barker do not refer to our tentative explanation of the twenty-one-months' cycle, based on the lag of nine months between the "profits" curves of breeders and feeders.²

¹ It should be noted that if prices fall it may pay to slaughter not only sows which have had five litters, but also sows which have had four.

² It will be seen that the question of under-capacity of sows is irrelevant since in either case the total number of sows served could be reduced immediately. When farmers wish to increase the pig population they can always do so by not slaughtering sows which otherwise would have been killed.

III

Thirdly, Miss Cohen and Mr. Barker discuss our statistical investigation as to whether pig feeders do or do not consider that present prices and costs will continue unchanged. We concluded that feeders do not expect present prices and costs to continue unchanged, a conclusion which Miss Cohen and Mr. Barker believe to be "almost certainly sound." Since the essential feature of the "cobweb theorem" is that producers should consider that present prices and costs will continue unchanged (and this was also the assumption of the Reorganisation Commission), we thought that in proving that the main assumption of the theorem did not hold in this case, we had shown that the "cobweb theorem" could not be applied to the British pig industry. Miss Cohen and Mr. Barker reply to this by substituting for the "cobweb theorem" another argument which does not make this assumption. It is clear, however, that they agree that the "cobweb theorem" is not applicable, for they conclude that "it is thus reasonably certain that pig feeders expect prices to fall when they are exceptionally high and to rise when they are exceptionally low." They then present the following argument. They suggest that "although farmers may expect especially favourable existing prices to become less favourable, or especially unfavourable prices to become less unfavourable, they believe that very high prices will still remain above normal and very low prices below normal," and therefore increase or decrease production accordingly. They argue that it is not necessary for their theory "that farmers should assume that existing price and cost relationships should remain *unchanged*. It is only essential that they should expect them to continue to diverge from the normal in the same direction as they do at the existing moment, and *proportionately* to the actual divergence." It is not clear exactly what is meant by this statement. Does it mean that farmers expect future profits to vary proportionately to present profits or future prices to present prices? It seems obvious that farmers whether breeders or feeders cannot assume that profits will continue to be above or below normal; for if they were breeders they would increase or decrease production, while if they were feeders they would bid up or down the price of store pigs, until the cost per pig had risen or fallen sufficiently to leave only normal profits. It is unreasonable to suppose that farmers assume that profits will be above or below normal for

pigs, the production of which they are contemplating now. Turning to *prices* on the other hand, it is not unreasonable to suppose that farmers expect prices to be above or below the equilibrium level and it is possible that the analysis of Miss Cohen and Mr. Barker referred to estimated prices rather than to estimated profits. If this is so it can be shown that there is no definite relationship between the actual price and the price which is expected. This can be easily demonstrated by reference to Diagram II in their article.¹ Miss Cohen and Mr. Barker's modification of the "cobweb theorem" seems to have little validity. It is obvious from the fluctuations which do occur that farmers are unable to forecast accurately future prices. The expected value of a baconer can be obtained if the price of store pigs is given; but since the price of store pigs depends on the expected price of a baconer (being bid up or down in such a way as to make expected future profits normal) the problem of the determination of this price remains unsolved. Miss Cohen and Mr. Barker do not appear to realise the importance of their abandonment of the strict form of the "cobweb theorem"; that is, that farmers expect that present prices and costs will remain unchanged. If farmers do forecast, that is, if they do learn from experience, then it is highly probable that there would be a tendency to produce the equilibrium output assuming demand and supply conditions to remain unchanged. If farmers, however, acted in the way postulated by the "cobweb theorem," fluctuations would occur even under these static conditions. The cycle might therefore be dependent on the existence of certain dynamic factors such as changes in demand or cost conditions, both greatly influenced by trade-cycle movements. The essence of any "cobweb" explanation of the pig-cycle is that there should be a fixed relationship between future expected prices and present prices. Since such a fixed relationship does not appear to exist, an adequate explanation of the pig-cycle must be found in terms other than those of the "cobweb theorem." As we pointed out in our paper the subject of the pig-cycle appears to be too complicated to be explained by an appeal to this theorem.

In spite of the close study mentioned by Miss Cohen and

¹ A careful examination of the relationships between actual and expected prices which we have made by means of a scatter diagram shows that there was certainly no relationship of the type mentioned by Miss Cohen and Mr. Barker. We excluded the periods of general deflation in the years 1921 and 1931-2 since we wished to eliminate the influence of the trade cycle.

Mr. Barker there is still much which remains to be explained. They state that we threw over the old explanation but did not substitute a new one, and they insist that the problem is to explain why there is a cycle. It is true that the "cobweb theorem" explains how in certain conditions a cycle may come about; unfortunately the necessary conditions do not appear to obtain in pig farming. If we are to judge from trade cycle theory, it would obviously be unwise to accept any explanation of a particular cycle merely because *given certain conditions* a cycle might result.

IV

We consider that the grounds which we gave in our paper for rejecting the "cobweb theorem" still hold. Firstly, it would appear that even if the "cobweb theorem" correctly explained the existence of the pig-cycle, the cycle would be one of two years instead of four years. The suppositions as to breeding policy advanced by Miss Cohen and Mr. Barker do not appear to meet our criticism in any way. Secondly, we pointed out that during the first cycle we considered, high profits were due not to a decrease in supply but to an insufficient increase. This point was ignored by Miss Cohen and Mr. Barker. Thirdly, we showed that feeders do not (and breeders probably do not) assume that existing prices and costs will remain unchanged in the future and this was admitted by Miss Cohen and Mr. Barker. Their modification of the "cobweb theorem" also does not appear to be applicable. It is true that we do not substitute a new explanation of the pig-cycle. Our main purpose in the section of our paper criticised by Miss Cohen and Mr. Barker was simply to show that an explanation is still lacking.

Neutral Money and the Trade Cycle

By HAROLD BARGER

I

As an intellectual discipline the theory of money is not concerned to provide norms for the direction of affairs. As a study it is sufficient in itself. But it has also a normative aspect. And for most people the analysis of the theoretical criteria of monetary policy is of the first importance in this connection. Such an analysis must deal with a variety of questions. If certain things are desired from monetary policy, how best may they be obtained? Which ends are compatible with which? Just how much can the regulation of the money supply achieve, and how much not?

It has been possible during the last few years to distinguish two broad lines of approach to problems of this sort. On the one hand are those who, setting out from the propositions of non-monetary equilibrium theory, are anxious to discover how far and in what circumstances their results remain applicable when the existence of money is taken into account. Or, to put instead the problem of policy as it presents itself to this group, how should the money supply be regulated, in order that they *shall* remain applicable? What conditions must be fulfilled in order that relative prices shall remain unaffected by monetary changes? For this group the ideal is a monetary policy which interferes as little as possible with the operation of non-monetary forces, one in fact which eliminates "influences from the side of money." Hence the desire that money should be made in some sense "neutral."

On the other hand, those writers who set out with the phenomena of the trade cycle more immediately in mind form a second, and to some extent a rival, group. To them, as to all for whom fluctuation is predominantly a cyclical phenomenon, the analogy of the pendulum, and the notion of movement about some point of equilibrium have always had a strong appeal. But equilibrium in this context has an entirely

different meaning from the use to which it is put in the theory of value. Instead of denoting a position in which everybody's relative scale is in equilibrium with the technical conditions of supply, the term merely implies an absence of those disturbances, generally thought of as mainly monetary in character, which show cumulative tendencies. From these ideas has sprung a body of cycle theory, with its own specialised use of the term equilibrium, which, if less comprehensive, is at least no less difficult to formulate.¹

Both these streams of thought have their origins in the work of Wicksell. For him the "natural rate of interest" was the rate which would prevail in the market if capital were lent *in natura*, i.e. in a barter economy. The first group of writers, who frame their theory of money in terms of neutrality and departures from it, take their stand accordingly upon this definition. But Wicksell also defined natural rate as the actual rate of interest which will, in a money economy, equate the demand for loan capital with the current supply of voluntary saving. And it is upon this set of ideas in Wicksell that the attention of the second group of writers has been concentrated, the group which comprises those who frame their monetary theory in terms of a concept of equilibrium, and who (implicitly or explicitly) view the trade cycle as a fluctuation in the relation between the demand for capital and the supply of savings.

We all know, of course, that Wicksell thought there was yet a third alternative, that natural rate might be defined as the rate which would stabilise the commodity value of money, and that he believed this third definition to be in all respects equivalent to the other two. It is, however, becoming more and more generally agreed that this is only so, if at all, under very special assumptions. In general, neither a money which is neutral, nor a money which secures equilibrium in the trade cycle sense, will possess a stable value in terms of commodities. But this question lies outside the scope of the present discussion.

However this may be, there are at least more solid grounds for the view that his first two definitions of natural rate are identical. Wicksell himself certainly thought they were.²

¹ It is doubtless true that the equilibrium of pure theory is unattainable in the absence of equilibrium in the cyclical sense. But it is at least highly improbable that the second necessarily involves the first.

² Cf. *Geldzins und Güterpreise*, 1896, p. 93.

Prima facie they would seem to be saying almost exactly the same thing. If the money supply is regulated in such a way that the rate of interest is always the same as it would be if the goods were lent *in natura*, then surely equality between the demand for capital and the supply of voluntary savings must be assured: and vice versa. It is therefore all the more surprising that those writers who have taken the first definition as their starting point¹ should sometimes have arrived at conclusions which appear to conflict so sharply with the results reached by those who have started with the second definition.² Other writers, keeping perhaps more closely to Wicksell's terminology and mode of thought, have reached the conclusion that there was nothing whatever to choose between the two lines of approach, that in fact a money which is neutral is in every respect identical with a money which secures equilibrium in the trade cycle sense.³ The purpose of the present paper is to analyse these various contentions.

II

Let us begin with the first stream of thought. The most thorough discussion of the conditions which money must fulfil in order to remain neutral, is contained in J. G. Koopmans' contribution to the *Beiträge zur Geldtheorie*. In summary form, the argument of this writer is as follows: The distinguishing feature of indirect exchange is that two monetary transactions are necessary where under barter there is only one. If, living in a barter economy, I wish to have a tooth pulled out, I give the dentist in return a little advice about his investments. As things stand to-day, this involves two money transactions. First I must sell for cash my views on the future course of the stock market, and secondly I must use this cash to pay my dentist. The condition that money shall remain neutral is that it shall be possible to pair off money transactions in this fashion continuously throughout the economy. Which means, as Koopmans shows, that everybody must keep his money receipts per unit of time equal to his money disbursements. Or alternatively, if anybody allows the former to exceed the latter (i.e. hoards), then (if money is to remain neutral) either someone else must, simultaneously and of their own free will, do the

¹ Cf. Professor Hayek.

² Among these writers we may class Mr. Keynes.

³ Cf. J. G. Koopmans, *Beiträge zur Geldtheorie* (ed. Hayek), 1933, p. 245. G. Myrdal seems also of this opinion. Cf. *Beiträge*, pp. 387-90.

opposite (i.e. dishoard): or else the banking system must come to the rescue, and create additional money at a pace equal to the rate at which the money balance of the individual in question is increasing. And if anyone allows his money disbursements per unit of time to exceed his money receipts (i.e. dishoards), and nobody else has, by accident, simultaneously taken it into his head to do the opposite, then the banks must withdraw money from circulation at the same rate as the cash balance of the individual concerned is declining.

It is of course true that if our monetary economy is to exhibit only phenomena observable also in a barter system, then the banks must replace the demand no longer exercised by the hoarder, and must replace it not only in a quantitative sense, but qualitatively also. For in a barter economy no one can go on selling without continuing to buy; and if this peculiar onesidedness is to be completely neutralised when it appears under money, matters must be so arranged that the new buyer demands the same things as the seller renounces when he hoards. But this is not a condition which the banking system is ever likely to be able to fulfil. For without removing money altogether there is no way of telling how the hoarder would have exercised his demand had he been unable to hoard money. Is he, for instance, to be regarded as a saver? Or would he have bought consumption goods if precluded from increasing his money stock? We shall return to this complication in Section V.

Now, in so far as the volume of money does not alter, it is naturally impossible for anyone to increase his cash balance unless someone else is prepared simultaneously to allow some other cash balance to decline correspondingly. If no one else were prepared to do this, the velocity of circulation would immediately sink to zero, and all transactions come to an end. In the converse case, the velocity of circulation would become infinite. Of this Koopmans is perfectly well aware, and he therefore applies the term hoarding only to the person who initially changes his cash-balance, and denies it to others who acquiesce in the proceedings by allowing their balances to alter in the opposite direction. Koopmans' definition of hoarding results in a certain artificiality, and I do not think it is possible to get rid of this without importing the notion of velocity of circulation, which Koopmans for some reason does not wish to do. In truth, a person performs an act of hoarding or dishoarding according as he allows the ratio of his cash

balance to his turnover to increase or diminish. In the system as a whole, net new hoarding or dishoarding takes place according as the ratio of the volume of money to the aggregate value of transactions rises or falls. Furthermore, Koopmans recognises that if the number of stages in the process increases (put otherwise, if vertical disintegration takes place, or the ratio between the value of output and the total value of all transactions falls) then, if money is to remain neutral, the total value of transactions must be allowed to increase correspondingly. For the appearance of fresh stages (disintegration) has increased the flow of goods on to the market, without any corresponding increase of productivity. These represent a set of "half-transactions," the other half of which can only be supplied by an increase in the quantity of money. It may be noted that the fulfilment of these two conditions is likely to result in stability in the value of output, or in the aggregate money earnings of the factors of production.

Accordingly, a regulation of the money supply which is neutral must expand credit if, and only if, the velocity of circulation falls or vertical disintegration takes place. And vice versa. Such, in sum, is the condition for the neutrality of money which Koopmans puts forward, and it is clear that he regards it as identical with the condition for an absence of upward and downward movements of a cyclical character. "We can define 'Inflation' and 'Deflation' . . . as the two forms of non-neutral money. . . . The so-called 'null-point' of Inflation and Deflation is therefore identical by definition with the existence of a neutral money supply." (*Beiträge*, p. 245.) Whether this identity is indeed so certain, we shall inquire in a moment.

The other principal exponent of the doctrine of neutral money is Professor Hayek, and it is to be noted that his version of the criteria for its existence is closely related to that of Koopmans. For in Lecture IV of *Prices and Production* we read (2nd edn., p. 124): "... any change in the velocity of circulation would have to be compensated by a reciprocal change in the amount of money in circulation . . .;" and (p. 121): "... changes in the demand for money caused by changes in the proportion between the total flow of goods to that part of it which is affected by money . . . should be satisfied by changes in the volume of money. . . ." Here, evidently, are the same two sources of non-neutrality for the offsetting of which an increase in the money supply is to be considered justifiable.

It is true that, for a reason which remains obscure, Professor Hayek does not regard the special kind of vertical disintegration which is associated with a lengthening of the process of production as a justification for an increase in the supply of money—additional stages which are associated with the increased capitalisation of the process should, according to him, be allowed to lower the aggregate money value of output and the total money income of the factors. But other kinds of vertical disintegration, which are not associated with changes of structure, he treats as cases for monetary expansion (as does Koopmans). This special peculiarity of Professor Hayek's treatment, however, Koopmans does not discuss, nor have I space to discuss it here.

Professor Hayek does not identify the neutrality of the money supply with equilibrium in the sense of absence of trade cycle movements in quite so unequivocal a fashion as Koopmans is inclined to do. Nevertheless, it is pretty clear from the use he makes of the term equilibrium, and from his references to the credit cycle, that he regards the conditions for neutral money as corresponding very closely, in a theoretical sense, to the conditions for the absence of cyclical fluctuation. (Cf. *Prices and Production*, 2nd edn., 1935, pp. 23-6, 121, 125.)

III

We come now to the second stream of thought, a stream which has its source in the Wicksellian concept of a disparity between savings and investment. It can hardly be argued that Wicksell's own views on the trade cycle are very exciting to-day. In the relevant passages in the *Vorlesungen* he confines himself to the remark that cyclical fluctuation is very probably associated with changes in the value of money, but that the connection is in no way a unique or necessary one.¹ This sounds well enough, and has quite a modern ring about it. But we must remember that Wicksell believed that changes in the value of money were always uniquely correlated with a discrepancy between savings and investment. The passage in question amounts, consequently, to a denial that there is any necessary or unique connection between such a discrepancy and the phenomena of the cycle. It is evident that what Wicksell is really doing at this point is to fall back upon non-monetary explanations of fluctuation. Two pages earlier than

¹ Cf. *Vorlesungen*, 1928, II, p. 241.

the above quotation he has already dismissed the non-monetary theories of Tugan-Baranowski, Spiethoff and Lescure as unsatisfying. He therefore proceeds to develop the discontinuity of technical progress as a cause of fluctuation. Monetary policy might mitigate crises, but a "wave-like motion" due to real factors would always remain. Indeed, in a celebrated reply to Brock,¹ he had already disclaimed any usefulness for his monetary analysis as an explanation of the cycle.

The use of the savings-investment concept as an explanation of the trade cycle in monetary terms is consequently not to be found in Wicksell. It has since become none the less obvious (in spite of anything Wicksell himself may have said to the contrary) that this concept is a very useful tool for anyone who wishes to develop a theory of the cycle. It has become such a tool in the hands of Fanno, Mises, Robertson, Keynes, Lindahl and Myrdal amongst others. There are of course marked differences of definition and of emphasis between these authors, differences which I do not propose to discuss here. I shall merely remark that they all regard fluctuation as closely correlated with a discrepancy between savings and investment in the sense of Wicksell, and regard equality between these two things as a principal condition for its absence.

In discussions of this subject it is often implied that one credit policy, and one only, will secure equilibrium; that Koopmans' "null-point" between inflation and deflation is in fact *one* point and not several. It is at least equally probable that credit is, in Mr. Hawtrey's phrase, "inherently unstable," only outside a given range: and that within that range credit derives a somewhat specious stability from the existence of frictions and time-lags. Possibly Koopmans' null-point should be replaced by such a "range of indeterminateness," if not indeed by multiple equilibria. Into this attractive field I dare not enter.

By the phrase "equilibrium in the trade cycle sense" I shall mean an absence of those fluctuations which in a monetary economy it is convenient to identify with the terms inflation and deflation. They may be due originally to changes in real data, but it is the business of an equilibrium monetary policy to adapt itself to, and offset, such changes in so far as they would otherwise be a cause of fluctuation. If in what follows I appear to endow this state of equilibrium with a definiteness and

¹ *Ekonomisk Tidskrift*, 1909, p. 61; see Brinley Thomas, *Economic Journal*, XLV, p. 40 footnote (March 1935).

uniqueness which it does not in reality possess, I can only plead reasons of space.

IV

The main purpose of this paper is to institute a comparison between the concepts which each of these two schools of thought regards as fundamental to its notion of monetary adjustment. We shall inquire in other words whether a régime of neutral money is both a necessary and a sufficient condition for an absence of fluctuation in the trade cycle sense. If it is, the two concepts are identical, as Koopmans seems to believe is the case.¹ If it is not, then, however far away the practical problem may at present appear, it is possible that the choice between them will ultimately become an issue of policy. Such a comparison resolves itself into two parts. In the present section we shall inquire whether a régime of neutral money is from the theoretical point of view a sufficient condition for the elimination of the trade cycle. In Section V we shall ask how far it is a necessary condition for the attainment of this object.

If the money supply is neutral, then, by definition, everything happens precisely as it would do in a barter economy. The question to be answered in the present section is consequently whether in such an economy general fluctuations in economic activity would be possible. We may readily admit that the amplitude of the fluctuations we know in the real world is the result of the existence of a monetary system ; but it does not follow out of hand that fluctuations would disappear altogether, if that system were absent, or if influences " from the side of money " were eliminated.

It is necessary at this point to say a word about what one means by the phrase barter economy. Money is absent. Exchange takes place directly. It must not however be supposed that all commodities are marketable against each other with equal ease and certainty. To ensure that he will always be able to meet his obligations, an individual will tend to keep some of his wealth in a more liquid form than the remainder. In order that money shall be absent, there must exist no single good, or small group of goods, which individuals place by general consent at the top of their scales in respect of liquidity. In other words there must be no agreed view as to which is the best good to keep for the purposes of what we may still

¹ *Beiträge*, p. 245.

call a "cash-balance." For if any particular good stands out as the obvious one to hold in satisfaction of the desire for liquidity, it begins to fulfil the functions of money, and its exchange ratio is affected by alterations in this desire. In a barter economy the "cash" of which the cash-balance is composed must be a different commodity for each individual.

Such a system would of course be quite unworkable if exchange were at all complicated. And since one is thinking of a system to compare with the real world, a system in which there must therefore be much capital and a considerable division of labour, it follows that exchange in our barter economy will be just as complicated as it is in the real world. So complicated, indeed, that our economy may not work at all, or only with the severest frictions. We must nevertheless assume, for the purposes of analysis, that there is nothing inherently absurd about the idea, that it would in fact be capable of working, and that the frictions consequent upon a régime of direct exchange can be neglected. This is doubtless what Koopmans has in mind when he talks about the "ideal" type of a barter economy. Those frictions and rigidities which actually figure in the real world will of course remain. All others are to be excluded.

Let us then imagine such a barter economy in equilibrium, and let us proceed to inquire what possibilities exist for a fluctuation to develop. For this a change of data will clearly be necessary. And here a very important distinction becomes relevant. A fluctuation which is general over the whole field of economic activity may appear in two ways. Either the change of data may itself be completely general; or at any rate so highly generalised that it affects nearly all forms of activity directly. Or the disturbance may affect directly only certain industries, certain lines of activity.

A general change of data, if it affects the activity of all individuals (with rare exceptions) in the same direction, even if it does not do so everywhere in like degree, may very well give rise to a general fluctuation without more ado. For example a discontinuous increase of productivity which was itself general might lead to discontinuous changes in the volume of saving and in the rate of interest; and a sharp fall in the volume of saving or rise in the rate of interest might well produce a general falsification of prior expectations, and a crisis. But it is not easy to think of a satisfying example of a disturbance which would be sufficiently general to have these effects. For

a change of data confined to some particular part of the system, an unusual crop for instance, or an invention in a given industry, is likely to affect all (or nearly all) lines of activity only if there exists some mechanism which allows the original disturbance to propagate and generalise itself—some mechanism which induces what is known as “repercussion.”

It might be thought that the peculiarities of business psychology provide the possibility of a general disturbance. It has often been argued that, even if it is incapable of itself of originating a general fluctuation, business psychology at any rate provides an instance of a repercussive mechanism. The tendency of errors of optimism and pessimism among entrepreneurs to spread and intensify themselves is a factor which Professor Pigou has discussed at some length.¹ Such exaggerated anticipations doubtless play a part once a fluctuation has become general and got under way. But it may well be doubted whether they are capable themselves of initiating a general fluctuation, or of enabling an isolated disturbance to propagate itself. First let us suppose that favourable and unfavourable anticipations are equally likely, and that their distribution is random. Then if the number of individuals in the system is large, the net optimism or pessimism in the system is likely at any moment to be small—too small to grow of itself cumulatively. Second, assume an isolated disturbance. The random distribution of anticipations is upset. But in the absence of money a change in exchange ratios which benefits some individuals is likely to harm others correspondingly. Once again—provided that the disturbance is confined initially to a small part of the system—no net tendency of any size to optimism or pessimism is likely to develop.

Quite otherwise of course is the case in which the originating disturbance is itself general in character. Earthquakes, other Acts of God, and the behaviour of politicians, may clearly increase uncertainty, i.e. increase the dispersion of individuals' anticipations. Since in a barter economy no single good satisfies the desire for security this will not necessarily of itself lead to general fluctuation. But besides increasing uncertainty, it is clear that such general disturbances as the above may alter also the modal anticipations of individuals predominantly in one direction, and so lead to the emergence of net optimism or pessimism in the economy. But the originating cause is here to be found rather in the earthquake than in business

¹ A. C. Pigou, *Industrial Fluctuations*, 2nd edn., 1929, Part 1, ch. vi and vii.

psychology. It seems therefore that business psychology and the theory of anticipation deserve a place rather in the catalogue of tendencies to cumulation once a general fluctuation has started, than in the etiology of such fluctuations.

There can be no doubt that the best example of a repercussive or generalising mechanism is provided by the banking system. In most of the so-called "crop" theories of the trade cycle the banking system plays this part. For provided that it is willing to acquiesce in the proceedings, a good harvest may lead to an increase in the money incomes of agriculturists without any corresponding decline in the money incomes of industrialists, so causing a net increase of optimism. Nor does acquiescence on the part of the banking system necessarily involve any expansion in the *volume* of credit, however likely it may be that acquiescence will take this form in the real world. For agriculturalists and industrialists alike may turn over their balances more quickly as a result of the good crop, so enabling a larger aggregate money income to be financed, not through any increase in the available means of payment, but through a more rapid circulation of the existing volume of money. The repercussive mechanism is here the very money medium itself, and there can be little doubt that a fluctuation in the activity of some part of the system might become general, even with a purely metallic currency of constant volume, in the complete absence of any banking organisation.

But if a banking system is present, then the repercussive process, in so far as it is monetary, involves in a certain sense the acquiescence of that system. For changes in the velocity of circulation, or the demand for cash balances, can be offset by the banking system in so far as they would otherwise induce changes in the aggregate money income of the community. Nor of course could the general level of activity rise very far if the banking system were unwilling actually to *expand* the volume of means of payment. It is evident that such explanations of the cycle, non-monetary in the sense that they start from some real disturbance such as a good crop or an invention, are yet monetary in the sense that they provide no possible basis for fluctuation in a barter economy. Nor do theories involving repercussions of this type, i.e. via a variation in the total money income of the community, cast any doubt upon the sufficiency of a neutral money supply as a deterrent to general fluctuations in economic activity.

If therefore a disturbance in some particular part of the

system is to propagate its effects, and so give rise to general fluctuations, we must look for some other form of repercussion which would still be present in an economy subject to barter. At least two such forms of repercussion have been suggested. First, Mr. Robertson has analysed at considerable length the possibility that a disturbance affecting relative prices might, via a change in the effort price of income, produce a net variation in the volume of effort expended by a community.¹ Mr. Robertson himself applied this analysis particularly to the case of crop fluctuations and their reactions upon the size of industrial output. It is not easy to see how a *single* exceptional crop could give rise to a series of anticipations certain of ultimate disappointment, or start on its way a cyclical movement of any significance. But it is plain that if an important crop was itself subject to a cycle of regular period, such cycles might become generalised. And they would obviously be present even in a régime of neutral money. By appropriate *departures* from neutrality it might be possible to iron them out, if this were thought desirable. But in the world of to-day Mr. Robertson's analysis can surely have only very secondary importance. For on the one hand as the world grows richer any particular agricultural crop forms a smaller and smaller share of world production; and is nowadays cultivated under such varying weather conditions that crop fluctuations tend to even themselves out geographically. And on the other, Mr. Robertson's repercussive mechanism presupposes an ability upon the part of the individual to vary his supply of effort in a fashion which modern industrial conditions render difficult or impossible.

We may conclude that it cannot be taken for granted that neutral money is a sufficient condition for the absence of fluctuation. On the other hand insufficiency in this respect still requires a case to be made out for it. Repercussions for generalising isolated disturbances are—apart from a money supply which is not being kept neutral—far from easy to find. Among the most promising material in this connection must therefore be counted those disturbances whose immediate effect is system-wide, viz. Acts of God and of politicians.

V

We must now turn to the problem how far the neutral regulation of the money supply is to be considered a *necessary*

¹ D. H. Robertson, *A Study in Industrial Fluctuation*, 1915. Part 2, ch. i and ii.

condition for equilibrium in the cyclical sense. Must every departure from neutrality release a tendency to inflation or else to deflation? Or may there be disturbances of a monetary character which, while interfering with the equi-marginal distribution of resources, show nevertheless no cumulative tendency to expansion or contraction of the money supply?

The possibility of such a disturbance arises essentially from frictions and rigidities of an institutional character. As an example let us take the difficulty which faces the banking system when it attempts (as it must) to interpret individual decisions about saving. It is generally agreed that if an individual decides to hoard, the banking system should expand credit correspondingly, in order to offset the deflation which would otherwise supervene: and vice versa. Now in so far as the avoidance of fluctuation is concerned, it does not in the least matter *at what point* the fresh credit appears, provided the injection is of appropriate size. It has often been thought that from the point of view of the neutral regulation of the money supply the particular place of injection is equally unimportant.¹ For (so runs this train of thought) our hoarder is really a saver; the important thing is that effect should be given to his decision to save, through the construction of capital; this the banking system can arrange by expanding the supply of money available to entrepreneurs; and the principle of equi-marginal returns is satisfied through the ordinary working of the capital market.

So runs the argument. And if the capital market were perfectly organised it would undoubtedly be valid. But in fact this is very far from being the case. For instance, it is perfectly possible for the banking system to inject fresh purchasing power without expanding the supply of money capital at all. This it can do by granting credit to consumers (either directly by way of overdraft, or indirectly by discounting hire-purchase bills), or to the Government for the ordinary purposes of the budget. The individual decision of our saver is rendered abortive, not in the sense that a deflation supervenes, but in the sense that his preference for future goods over present goods has been prevented from having its appropriate effect upon the relative supply of these two kinds of good. Since nothing of this kind could possibly happen in a barter economy, it is plain that money is no longer neutral, even though equilibrium in the trade cycle sense remains undisturbed.

¹ E.g. Koopmans, *Beiträge*, pp. 353-5.

Diversions of this kind owe their existence to imperfections in the market for capital. They depend upon the ability of the banks to choose at what point in the system they will inject the fresh credit—to choose, in other words, what kind of asset they will hold in larger quantity than before. If rates of interest on different kinds of asset corresponded exactly to the costs involved in the provision of different kinds of capital, and if the standing of borrowers could be assessed with precision, and there were no unsatisfied fringe, matters might stand otherwise. At any given moment the volume of credit and the structure of interest rates would then be uniquely correlated. The banking system would have no control over the type of asset which it acquired in expanding the supply of credit, or over the distribution of the total assets which it held at any given moment. The new borrowers would in every case be those who in the previous situation were immediately sub-marginal. Partly they would be long-term borrowers, partly short-term borrowers; mainly they would be entrepreneurs, but to some extent also they might be consumers.

Money will not be neutral, nor will equilibrium in the trade cycle sense exist, unless the banking system holds at every moment certain definite types and amounts of assets. But the first of these criteria imposes much more stringent requirements upon the behaviour of the banking system than does the second. If equilibrium is the object of the system, the distribution of its assets is a matter of indifference: the important thing is that their volume should be appropriate. This volume may of course vary with the particular distribution chosen. The requirements for neutrality in the money supply are, on the other hand, much more elaborate. To satisfy these also, the system must not only hold assets which are defined (this time uniquely) in amount: it must also hold a particular assortment of assets. For unless the whole of these assets are so distributed as between different categories that their marginal productivity (or utility) to the debtor, and the marginal cost of holding them to the bank, are each equal to the rate of interest which they bear, it cannot truly be said that the supply of money is neutral. A departure from neutrality in the distribution of an increment of assets naturally implies a maldistribution in the current supply of savings as between different objects of investment. A similar departure among the existing mass of assets implies a misdirection of past savings. The latter misdirection

can, in the nature of things, only be corrected slowly as amortisation takes place.

How far existing banking practice is (or is not) likely to lead to a *total volume* of credit appropriate to equilibrium in the trade cycle sense, is a problem which has been discussed at great length elsewhere and cannot be considered here. Given, on the other hand, that the total volume of credit is appropriate in the above sense, the question how far the existing habits of bankers are likely to lead to an optimism *distribution* of this total has received considerably less attention.¹

The efforts of the individual banker are, in general, directed towards the attainment of a compromise between the rival objects of liquidity and profits. The result is (roughly speaking) that the assets which are least liquid bear the highest rate of interest, and vice versa. The question, in fact, is how far these differences in interest rate correspond to real differences in social cost, i.e. alternatives forgone by the community. By this criterion, the principal, if not the only valid, reason why one borrower should pay more than another, lies in the risk premium. In terms of forgone alternatives, the provision of capital for risky employments is undoubtedly more expensive than for safe employments. This provides perhaps a partial justification for the practice whereby long-term borrowers pay more than short, and industrial borrowers more than the Government.

A practical banker, on the other hand, would be much more likely to explain this difference in rates in terms of differences in liquidity. He has to bear in mind his responsibility to his customers, must be prepared to cash their deposits, must be able to replenish his own cash reserve, is therefore willing to hold assets bearing a low rate of interest in proportion as they can easily be turned into cash, etc., etc. In this context the test of liquidity in an asset is that it should be easily marketable, and should not be subject to depreciation. He is therefore prepared to lend at lower rates to those people who only want money for a short period, or who can, if necessary, turn to the central bank for accommodation. The result of this is that a bill broker can obtain capital for (say) six months—at times from the commercial banks in call money, at times by borrowing at the central bank—at a very much cheaper average rate of interest, than can a manufacturer or merchant who borrows from the commercial banks for six months by loan or overdraft.

¹ Cf., however, J. Stafford, *Essays on Monetary Management*, 1933, pp. 109-11.

How far the community really sacrifices less resources in providing the bill broker with capital than in providing the manufacturer, remains an open question. Certain it is that the broker gets his capital cheap through an accident on the one hand, and a privilege on the other—the accident the banker feels the way he does about liquidity, and the privilege the central bank grants the broker in being prepared always to discount his bills. To some extent no doubt central banks happen to consider bills drawn for financing international trade as especially eligible, so allowing their discount by the market at artificially low rates. In so far as this is the case central banks are perhaps not so much causing a fresh diversion of resources, as redressing a balance already badly upset in the other direction by the activities of our modern mercantilists.

For the banking system as a whole liquidity is only attainable through the willingness of the central bank to expand the supply of common money. Certain individuals are in a position to provide the banking system with liquid assets, not because there is anything peculiarly liquid about the type of business they conduct, but because they (and they only) have access to the source of additions to the supply of cash. The liquidity to which a single joint stock bank is able to attain has no social significance whatever, and represents merely the ability to call cash towards it from some other part of the system. Either someone else must become less liquid in proportion as it becomes more liquid, or else the central bank must manufacture liquidity for the system as a whole by creating additional cash. It would seem therefore that the lower cost at which the banking system appears able to finance certain types of business is largely due to an accident of an institutional nature, and reflects no lesser sacrifice upon the part of the community.

Considerations of an analogous character may be applied in discussing a bank's treatment of its liabilities. Willing in some measure to forgo immediate claims to real income, and prepared to hold paper among its assets, it is in the last resort the public, whose behaviour makes it possible for the banking system to hold any assets at all in excess of its liability to its shareholders. And the public is undoubtedly entitled to be paid for the capital it provides through its willingness to hold cash balances. But the custom, whereby time deposits bear interest and sight deposits do not, seems scarcely to have any adequate justification in social accounting. The custom owes its origin, of course, to those same considerations of liquidity,

in the minds of bankers, which lead to such odd results on the other side of their balance sheets. If the revenue from an asset varies inversely as its liquidity, and if a bank can afford to be less liquid in proportion as its liabilities are time rather than sight deposits, it is clear that it will pay any single banker to offer more favourable terms to depositors who agree to give notice of withdrawal than to those who insist on payment at sight.

From the social point of view on the other hand it is a matter of complete indifference whether the members of the public prefer to keep their cash balances among the liabilities of one commercial bank, or of another commercial bank; or whether they prefer for this purpose the liabilities of the central bank (or other note-issuing authority). Depositors who promise for a space neither to ask for their deposits back in the form of notes, nor to write cheques in favour of customers of other banks, are in an analogous position to borrowers who promise repayment on demand. Because of its concern with its own liquidity, it is to the interest of any one bank (and therefore of all the banks) to offer specially favourable terms to both these classes of customers. But the banking system as a whole manufactures its own liquidity; and to the system as a whole it is no more an advantage to have liabilities which are slow than to have assets which are quick.

If a social justification is to be found for the banker's practice of accepting time deposits on more favourable terms than demand deposits, it must evidently be sought elsewhere than among considerations involving the idea of liquidity. It is true for example that a transfer of funds from demand to time deposit is likely to involve an act of saving, and, in so far as it does involve such an act, the interest paid on time deposits doubtless represents the price of this saving. But why then should the individual who hoards a demand deposit not equally receive remuneration for the capital with which he provides the community? Every individual to whom a banker is indebted performs an act of saving which is measured by the magnitude, and which endures for the duration, of the indebtedness. By discriminating in the reward offered to different savers, the bank prevents the individual from saving his *optimum* amount. In fact the optimum rate of saving, for the individual and for the community alike, will be secured only if the banks make no distinction between time deposits and demand deposits, but pay instead the same rate of interest on all their deposit liabilities.

(Strictly speaking of course this applies to the notes of the central bank as well.) The only qualification to this principle is the very obvious one that bankers should vary the terms they accord to their depositors in conformity with the trouble involved in keeping each account.

A banking system which was perfectly neutral in its behaviour would, accordingly, regulate the total volume of credit in a certain definite fashion. But in addition it would hold earning assets, the rate on which would vary only with their riskiness, and not at all with their liquidity. After covering their expenses, and paying the market rate on their capital, the banks would then distribute the whole of the remainder of their earnings in interest on their remaining liabilities. According as they desired to sacrifice profits to liquidity (or vice versa), they would sell to (buy from) the central bank, earning assets in exchange for cash. Their own peculiar ideas about liquidity, however, would have no further effect upon the body economic, except in so far as it affected the price of bank shares. According as it became necessary to expand or contract credit, they would find themselves buying (selling) assets from (to) the public. Control of the volume of credit would lie in the hands of the central bank through its buying and selling prices for assets of varying degrees of risk.

VI

There are many points which have not been touched on in this paper. The behaviour of governments, for example, as the cause of disturbances, monetary in character, to the equi-marginal distribution of resources, has not been considered at all. Yet in many countries to-day governments are much more active in determining the amount and distribution of fresh investment than are banking systems. Nor does this by any means exhaust the list of institutions which are capable of disturbing the neutrality of the money supply. Nevertheless, it is possible I think to extract some grains of comfort from what appears a rather desperate situation.

In the first place the above analysis would appear to provide a powerful argument in justification of two tendencies much in vogue at present. I refer on the one hand to the increasing establishment of central banks throughout the world, and on the other to the growing consolidation of commercial banking. We are accustomed to welcome the former as a means for the

better control of the volume of credit. If the above analysis is sound, we should welcome both as a step towards its better distribution. Both central banking and the consolidation of commercial banking have in their time been roundly condemned by the apostles of "free banking," on the ground that (like any other monopoly) they would lead to increasing violation of the principle of equi-marginal distribution of resources. But it seems highly probable that this argument is more potent in their defence than in their condemnation. For the individual banker's views upon liquidity are a powerful source of maldistribution in this sense. The more central banking there is and the fewer commercial banks there are, the less will bankers need to conform to a principle of a liquidity which is, socially considered, entirely specious.

In the second place, it is clear that, whether or not a régime of neutral money is a sufficient condition for the absence of fluctuation (and we saw in Section IV that this is doubtful), it is at any rate evidently not a necessary condition. And perhaps stable business conditions are after all for most of us a more important desideratum than a completely perfect distribution of the resources of the community among different uses, or even an optimum rate of saving. We may perhaps tolerate some inequalities in the marginal return to investment, and some inappropriateness in the current rate of saving, if we can secure that the total volume of the former is in harmony with the latter. The distribution of the supply of credit is perhaps less important than its aggregate amount. Let us first attain equilibrium. Then, and then only, can we seriously discuss neutrality.

An Aspect of Competition in Transport

By GILBERT J. PONSONBY

THE rapid succession of cost-reducing developments which have characterised the growth of road transport since the War, has been accompanied by a general apprehension that the rate and degree of obsolescence thereby sustained by already existing forms of transport involve some degree of "waste," the avoidance of which is only possible by some form of legally enforced protection; and that the more millions of pounds that are known to have been invested in the older forms of transport, the more deserving are they of some special dispensation from the otherwise inevitable consequences of such developments. It is intended to examine precisely what are these consequences, and to question their wastefulness.¹

I

A principal cause of the financial embarrassment sustained by railway (and tramway) undertakings since the War, can be traced to the failure of those responsible for investment in pre-War days, adequately to have regard for the future course of demand for the services of that capital. Had only the scale on which road motor transport has in fact deflected traffic from these facilities been foreseen, there can be no question that much of the investment that was undertaken would never have been so. And² it must be regarded as "wasteful" in the sense that, having regard to the meagre dimensions and transient character of the demand for the services of that capital, the investment was mistaken.

¹ In so far as road transport has not borne its appropriate share of road maintenance and construction cost, then it could well be claimed that there has been waste. For the whole industry, through the instrumentality of public finance, may have been thus able to develop beyond that point at which marginal returns are equal. It has been subsidised out of public funds. But it is not the object of this article to deal with that problem, which is concerned on the one hand with the taxation of road users, and on the other with the appropriate allocation of the taxes thus levied, and is a problem distinct and separate from the matter in hand. It is assumed throughout that road transport is covering its appropriate costs.

Revenues earned fell short of expectations, and were not commensurate with the sacrifices or costs that had been incurred. In some instances there was no financial case for providing (say) tube railway or tramway facilities at all. In other instances the investment may have taken an unduly durable form, the revenue-earning life of the assets concerned having been over-estimated. Or again, having regard to the rate at which assets were in fact to become obsolete, there was inadequate provision therefor. So that, when the unforeseen developments in road transport took place, there were large indebtednesses, representing widespread *expectations* to earn revenue, whilst there were correspondingly imposing physical assets. But the latter's capacity to earn revenue was other than what had been expected.

Having regard to much of what has been written on the subject, it cannot be too often emphasised that the alleged "waste" incurred in these circumstances does not take place at the time of the introduction of the new and better facilities, but was for the most part incurred at the time when these now partially obsolete assets were originally constructed. The introduction of the new facilities proves that there has been waste, and that the original investors in the older facilities had taken too rosy a view of the future course of demand for the services to be rendered by those facilities. The more millions of pounds that were invested, the more serious was the waste; also the greater the *magnitude* of the unrealised expectations on the part of proprietors. And whilst the legal "protection" of these facilities can indeed reduce the extent of these unrealised expectations, it cannot prevent the wastefulness of operations which were carried out in many instances several decades ago.¹ It is now intended to examine in somewhat greater detail the implications of the above, with a view to meeting fully the allegation that such assets as tunnels, embankments, rolling-stock, and so on, are, under the stress of competition, abandoned "wastefully."

II

It would seem that any study of the effects of road competition upon railway² finance and service is likely to be

¹ For a somewhat more elaborate exposition of this point, see my article "Road Transport and the State," in *Modern Transport*, February 2nd, 1935.

² Most of what is said of railway capital is equally applicable to that of electric tramway undertakings.

inadequate unless preceded by an adequate understanding of the nature of railway equipment itself and its relation to railway investment.

The first, and from the point of view of this study the most significant, characteristic of railway investment is the large proportion of it that has been incurred on account of assets, which on the one hand have no value in other uses, and on the other do not lose their technical efficiency with use, and so do not require renewing. Capital Account has been charged with expenditure upon land,¹ cuttings and embankments, which assets may now have no value in other uses; also with expenditure upon the initial survey for a main-line railway, upon the actual tunnelling involved in an underground railway, upon such road excavations as are required before constructing and operating a tramway, and upon the legal expenses of promotion. None of the expenditure included under this heading has been spent on assets which have a value in uses other than transport. It is specialised and non-transferable. Nor does it require to be expended a second time. The tangible results of such expenditure are the existence and possession of lands, embankments, cuttings, tunnels and certain rights.

Earnings in respect of such assets are in the nature of a rent or surplus, and in no sense can be regarded as a cost. Costs of operation, short- and long-run, may indeed be dependent upon them in the following sense: that the more lavish this initial outlay has been, the more direct may be the route taken and the easier the gradients to be negotiated. Such factors may result in low operating costs. But these cost-reducing elements are due to inherent qualities in the assets themselves, and are really quite independent of the magnitude of the investment made on their behalf. Analytically they are indistinguishable from the advantages which accrue from the use of natural features. The fact that a valley, or any natural feature, derives its value or revenue-earning capacity from its unique position and character, is not altered because we choose to call it a *cutting*.

The practical significance of this lies in the fact that both costs, output, and prices are, generally speaking, independent

¹ The land may have had considerable (say) agricultural value on purchase. But the very process of excavations or of the building of an embankment may destroy all its value in other uses.

of whether this surplus is realised or not.¹ So that even if the rate of interest upon this form of investment were to fall to zero, there would be no danger to the public, either of losing the facilities already being offered, or of having rates raised against such traffic as continues to pass "in order to cover the now greater burden of overhead costs per unit of traffic." For these capital charges are not overhead costs at all, but a *resultant surplus* earned after having adjusted costs, output and prices to the company's best advantage.

It is not intended here to estimate precisely what proportion of railway undertakings' capitalisation has been incurred on account of this type of equipment. This must differ widely both as between different railways and also as between different sections of the same railway. But it can be pointed out that the larger the proportion of the anticipated gross revenues which, had the anticipations of investors been fully realised, was to have been allocated as interest charges on that form of investment, so much the larger can be the falling short of that level of earnings without any disturbance, other than the frustration of proprietors' expectations. Similarly, the rate of interest paid on the total original investment or capitalisation can fall to a permanently lower level (without any necessary change in the nature or in the price of the service to the public), the larger the proportion of that investment which was spent upon these durable and specialised forms. Suppose, for example, so large a proportion as 80 per cent. of the original investment was in that form, then the rate of interest paid on that original investment might fall to a permanent level of 1 per cent., accompanied by no abandonment of equipment or change in the services rendered to the public. For the investment in those other forms to which attention

¹ The words "generally speaking" are inserted to cover the following case. Suppose revenues were to fall substantially below the expected level, this very fact may act as a stimulus to railway management to adjust costs, output and prices to the undertaking's financial advantage. Renewal funds will be re-invested in the most profitable manner, having regard both to new inventions and new tastes. New capital may be borrowed and profitably invested. According to circumstances there will be an increase or a decrease in facilities provided and/or charges made.

All these adjustments may be entirely successful, and may go a long way towards improving the position. But they may all have been of a character that would have improved the financial position of the undertaking anyway, whether that position had been serious or otherwise. But it required severe financial embarrassment (or the threat of it) before the necessary deviations from traditional methods and policy involved were undertaken. On the assumption, however, that irrespective of the seriousness of the financial position, managements make the best of the situation, the insertion of the words "generally speaking" would be superfluous.

will now be given, would be earning quite sufficient to justify its maintenance and renewal both in the short and long runs.

III

The next class of asset to be considered, whilst often physically indistinguishable from the first, is analytically of a very different character. Certain lands possessed by railway companies have an immediately realisable value in other uses. Land, for example, now occupied by railway sidings, in densely populated areas, which could at any time be disposed of and sold or let for other purposes. Its present value bears no necessary relationship to the price originally paid and charged to capital account. For on the one hand much of the land purchased for railway purposes is forthwith spoiled for other uses by the construction of embankments or other structures thereon; whilst on the other hand the industrial development that follows the working of a railway may substantially raise the value of certain lands above the price initially paid therefor. The holding and use of such land for transport purposes constitutes a "cost" in the sense that proprietors are denying themselves the annuity representing its value in other uses, deeming its earning capacity greater as now used, in transport.¹ The annual value of these assets in uses other than transport is a measure of this particular cost, which is absolutely short-run. Its importance arises on such occasions as when transport operations such as shunting, or the loading and unloading of wagons, are carried on upon lands in the centre of large cities where land values are high. For there may be alternative methods of carrying out these operations, some of which require less land acreage than others. The disposal value of lands possessed may determine the methods of operation adopted,² and must not infrequently determine policy, particularly when the scale of operations is being increased or decreased. This second cost then is essentially a short-run cost.

IV

The next group of costs to be considered are those incurred in respect of equipment, some of which is intended to have

¹ Or a planning authority may consider the land well suited for (say) housing or industrial development.

a relatively long revenue-earning life, some a relatively short one.¹ In the case of motor vehicles, tyres and certain engine parts may require renewing and have a relatively short life compared with a chassis. Upholstery in a railway carriage may have a relatively short life compared with the rolling-stock concerned, which latter may have a revenue-earning life of 20, 30, or more years. For convenience we shall refer to these two classes of equipment as short-lived (say 10 years), and long-lived (say 40 years). In fact, of course, there may be a large number of different classes of equipment ranging in expected longevity from one to forty years. What is common to all classes is that after the costs of construction have been incurred, a period elapses in which the assets are expected to earn both interest and depreciation.

Add to these costs prime costs, or those incurred in the very short run, and the classification is all-embracing. Once an undertaking is equipped for a given output of service, revenues are expected to cover Prime Costs, a rent equal to the value of those assets which have an immediately realisable value in other uses, interest and depreciation on short-lived equipment, interest and depreciation on long-lived equipment, together with a surplus to cover the debt service of that amount which has been invested in transport equipment, but which does not require renewing. In order to justify the continuous provision of a given output, all these items in the long run must be met, *with the exception of the last mentioned.*

V

Now the question to be determined is the time at which any of these assets are abandoned, when competition reduces revenue below this anticipated level. As has already been pointed out, revenues earned per unit of service over and above short- and long-run costs, and on account of investment in specialised and permanent equipment can fall to zero without any abandonment of equipment whatever. All "costs" proper are being covered. But suppose revenues fall below this level, and are, shall we say, below the level

¹ It may be mentioned here that the division between the renewal costs of long-lived and short-lived assets is quite distinct from the division of costs into "overhead" and other costs. It is sometimes thought that because railways have a relatively large amount of long-lived equipment, they therefore have a large proportion of "overhead" costs. But this does not follow.

expected when the investment in the long-lived equipment took place. What of this case?

Once investment in these long-lived assets has taken place, the interest and depreciation earned are in the nature of a surplus¹ earned over and above all shorter-run costs. In the early years this surplus may be large. But as time goes on, the shorter-run costs may increase, as in the case of motor vehicles demanding more fuel, oil, and minor repairs per vehicle mile as they become older, whereas revenue earned may have been expected to fall as the result of the facilities offered becoming out-of-date. (In the case of many railway assets, the item "revenue earned" must necessarily be in the nature of an estimate, since it is impossible to know the revenue earned by a particular shunting engine. Attention is properly directed to minimising costs, having in mind the required "standard of service," which assumes a certain revenue-earning capacity).

Now when the investment was made, the long-lived equipment was given (say) 40 years. In other words, the revenue earned in excess of the shorter-run costs was expected to be sufficient to meet the debt services on that investment during that time. After approximately those forty years, it was assumed that revenue earned would no longer exceed shorter-run costs, and that the equipment would be abandoned. Investors may have been under- or over-optimistic about the earnings of that equipment. The assets in question may have been capable of earning surpluses up to 60 years. Many assets are still in use to-day which earned their depreciation many years ago. On the other hand, they may have been incapable of earning surpluses after 20 years. It is this case that reflects what may so often happen when invention causes revenues to fall sooner in time than was first anticipated.

Three separate cases here may be distinguished. In some instances the assets may cease to be capable of being put to any revenue-earning purpose before the forty years are out. So that besides not earning debt services, they are abandoned sooner in time than was anticipated. In other instances, the assets may remain in useful employment as long as was anticipated, but the magnitude of the earnings may have fallen short of expectations, which means, of course, that they will not be renewed in that form. Thirdly, certain assets may remain in use many years after the anticipated period of

¹ This statement is slightly qualified in Section VI.

revenue-earning life, but yet may still not have earned the anticipated level of revenue required to meet debt services.

Assuming the level of revenue earned per unit of service to reflect the new price¹—brought about by technical development—it can be said that the long-lived equipment will be kept in use, so long as costs per unit of output (made up of all shorter-run costs) remain below the new price. It will be abandoned only when technical invention has reduced revenue, or has enabled a price to be charged below that which is necessary to cover shorter-run costs. Until that level is reached, the more durable equipment will be retained, since some surplus towards debt charges is better than none. Thus for forty years, revenues may be at a level, sufficient to justify the continued use of these long-lived assets, but insufficient to justify their reconstruction at the end of those forty years. And what applies to this long-lived equipment applies also to the short-lived equipment. Within the ten years of its life, so long as prime, or any other shorter-run costs are covered, that equipment will continue to be used with profit, although revenues after the first year may have fallen to a level far below expectations, and quite insufficient to justify its renewal.

Thus, the premature² abandonment of capital takes place only in the following circumstances: In the case of the absolutely specialised and durable equipment, this would only be abandoned if revenues were unable to cover all the other costs, short- and long-run, not including, however, any return on the capital invested in that durable form. Equipment requiring renewal after a long period will only be abandoned when revenues fail to cover the shorter-run costs incurred. Equipment requiring renewal after a fairly short period will be abandoned only when the costs incurred in a still shorter period of time are not covered by revenue. Whilst the *magnitude* of the fall in the level of earnings which can be sustained without abandonment, or immediate abandonment of equipment, will depend upon the relative importance of the capitalisation incurred on behalf of each of the various kinds of assets concerned. In cases where a very large part of the capitalisation has been incurred in respect of non-renewable and absolutely specialised assets (in cases, that is to say,

¹ This new price is what a unit of service will now fetch in the market, and in competitive conditions would correspond to that price which is expected to cover all future costs, having regard to new inventions.

² Premature, in the sense that equipment is abandoned prior to when it was *expected* to remain profitably in service, at the time of investment.

where expectations of revenues exceeding costs have been high), then the fall would have to be correspondingly large before any abandonment took place. Or again, as is shown in the table below, were items 5 and 6 (interest and depreciation on long-lived equipment) relatively important, compared with the total expected level of earnings, then, within the forty years concerned, the fall would have to be relatively large if that type of equipment were to be abandoned. In short, in cases where large sums have been invested in forms that are absolutely or relatively durable, there are strong forces at work which tend to keep those assets in use. Or rather, there is a presumption that falls in revenue below expectations must be more catastrophic before the assets concerned are abandoned.

TABLE GIVING A LIST OF THE COSTS REFERRED TO

7. Interest on sums invested in the construction (or purchase) of assets which are non-renewable and absolutely specialised.
- A. 6. Interest and } on sums invested in the construction of relatively long-lived
 5. Depreciation } renewable assets.
- B. 4. Interest and } on sums invested in the construction of relatively short-lived
 3. Depreciation } renewable assets.
- C. 2. Interest on sums invested in the purchase of assets which have a similar value in other uses.
1. Prime Costs.

VI

So far we have assumed a constant output over time. We have assumed that it was not profitable, under stress of competition, to work the capital assets concerned either more or less intensively than without that competition. And in many actual instances there would be little or no opportunities for varying output. It would seem, however, that since, when technical conditions change, the future revenue-earning capacity of certain assets change, it may no longer pay to preserve the life of certain assets against future revenue-earning opportunities, since those opportunities no longer exist.

In most transport concerns there is the problem of precisely to what extent vehicles should be operated into the off-peak hours. The greater these opportunities, the larger the vehicle miles operated per annum, and the lower the all-in costs per

vehicle mile, since all "time" costs can be spread over a larger number of vehicle miles. But (if an undertaking is working for profit), vehicles are not going to be operated into the off-peak periods unless the costs special to those periods are going to be covered.¹

Now among the costs which are special to the off-peak hours must be included some depreciation. Life is being taken out of the vehicle concerned. Vehicles will be worn out sooner in time because of these additional operations. In addition, therefore, to covering such special costs as wages and fuel, revenues should earn something towards depreciation; this, to compensate the proprietor for the fact that at some future date, instead of there still remaining some revenue-earning capacity in his vehicle, there will be none. Once, then, the investment has been made, the extent to which a proprietor enters the off-peak hours, or the intensity with which he uses his capital assets, may alter as a result of a changed view of the future. For whereas formerly he looked to eking out the efficient life of his vehicle with a constant eye on the future, once it becomes known that owing (say) to technical invention, there will be no value in the market for his vehicle after a given time (a time nearer than had first been anticipated), he will begin to take on business, or enter the off-peak period, to a greater extent than heretofore. This does not prevent him from receiving less from his investment than he had anticipated. He is selling the life out of his vehicle at a price less than he had hoped. But the policy of intensification enables him to sell more units of life out of his equipment, before they are rendered entirely obsolete through technical invention. In other words, when estimates of the future course of demand do change so as to diminish the present value of capital assets, the services rendered by them get offered at prices previously unacceptable. And whereas in those cases where there are no opportunities of intensifying uses, technical development may well compel abandonment before the asset has been used to the extent

¹ This does not necessarily mean that the actual earnings of every particular train operation must be sufficient to cover the costs incurred. For in certain circumstances it pays to give a station (say) a quarter-hour train service "throughout the day" — a quality greatly appreciated by the public. In this case some individual services may not appear to cover their special costs. But it pays to run those trains for the sake of being able to offer a regular service to the district. In fact, estimated revenues earned in respect of those trains *are* expected to cover the costs incurred. But among the receipts earned in respect of certain trains must be included receipts from certain other trains.

for which it was technically constructed, where there are these opportunities, there is a tendency to use up this technical life more rapidly before the impending obsolescence. This factor elaborates, but does not invalidate the foregoing analysis.

VII

A proper appreciation of Sections II-V of this article brings out clearly some of the possible effects of protecting railway and tramway facilities against the competition of other forms of transport, whether that protection takes the form of limiting the number of vehicles competing, or of controlling the fares charged, or in some other way of preventing the full development of the competing form of transport. In the first place, in so far as such protection succeeds in stemming the fall in revenues, it may have no other effect upon the railway or tramway position than to enhance the value of the durable and specialised assets, by enabling a larger "surplus" to be earned over and above short- and long-run costs.

Secondly, protection may so maintain revenues that whereas in its absence interest and depreciation on long- and short-lived equipment would have fallen substantially below expectations (the investment having turned out to be an unprofitable one), in its presence the equipment is able to earn revenues corresponding to original expectations. In both cases, by means of preventing the full development of other facilities, protection enables the financial results of the protected facilities to correspond more nearly to original expectations. In both cases, by creating a demand for the services of the assets concerned, protection makes possible a postponement of abandonment, perhaps for an indefinite period of time.

In addition (unless protection is relaxed when equipment comes up for renewal), there is the possibility that when protected equipment requires renewal through wear and tear, it will be renewed. For to all appearances it has earned its keep and will do so again. But in fact this re-investment is only justified under the influence of an artificially created demand for the protected facility. And had protection not been present such renewals would not have taken place, the new and preferred facility having been permitted to develop further, absorbing more capital and labour. Thus under protection capital and labour may be drawn into re-rendering

services for which there is a less urgent demand than for other new services. If this is accepted as being a "waste" of resources, then it is protection not competition that is responsible therefor. Whereas, as has been shown above, in the absence of protection there was no "waste" in this sense.

Book Reviews

Economics in Practice. Six lectures on Current Issues. By A. C. PIGOU.
London: Macmillan. 1935. pp. 154. 4s. 6d.

These lectures were delivered on the invitation of the University of London at the London School of Economics in 1934, and are designed, as the preface states, to be "on matters of general interest and more or less popular in tone." The lectures with perhaps one exception are on current issues, such as Economy and Waste, Inflation, the Balance of Trade, State Action and *Laissez-faire*, and so on. The very first, entitled *An Economist's Apologia*, stands somewhat by itself. Those on current issues are of value and interest to every reader; the first, though it should appeal to any intelligent man, can be read with special profit by his fellow-economists. Throughout there is ripe wisdom, and grace as well as clarity of exposition. They are admirable in style, catholicity, restraint, modesty. Professor Pigou unbends and does so most happily.

What is said in the first lecture on the scope, the methods, the limitations, the temptations of the economists may be recommended not only to them, but to all men of science. I get comfort from the remarks about the danger of indulging in intellectual playthings and the sterility of some of our controversies. It is well to be reminded that "the dry bones of theory should be clothed with an appropriate covering of statistical fact." And it is wisdom on Professor Pigou's part to remind his associates that on most fundamental matters they are after all in agreement, and that sometimes they discredit their science, imperfect at best, by bad manners and by exaggeration of differences. Differences are inevitable, and indeed are the signs of progress. In all scientific discussion the immediate interest cannot but be in the unsolved problems; controversies on new and unsettled questions inevitably bulk largest in the professional literature. In our subject perhaps more than any other the conspicuousness of the differences leads to the impression that there is no agreement among the experts and that little or nothing is to be learned from them.

Most of these Lectures are precisely of the sort that state the generally accepted conclusions of the economists. At the same time no economist can fail to get profit from reading them; he will find pregnant hints, important distinctions. Every reader, trained or untrained, must give strict attention throughout. Professor Pigou, as we know, is almost mercilessly consecutive in reasoning and exposition. Sometimes one wonders how far a hearer not already used to his ways of handling the subject could have followed the spoken word. This applies more particularly to the second and third lectures, on Economy and Waste, and the

Balance of Trade. Those that follow, on Inflation, Deflation and Reflation, State Action and *Laissez-faire*, and the Economics of Restriction, are models of simplicity, clearness, reasonableness. And they, too, will be read with profit as well as with pleasure even by the best informed and most conversant.

As we know there are in our science fundamentals on which differences of opinion persist, and at moments I have been led to pause and wonder. The reader of the *Economics of Welfare* will not be surprised to find it laid down (p. 120) that "all discounting of future satisfaction . . . is hostile to the interest of the community in the widest sense, when this is conceived as including future generations as well as the present generation." I am not sure whether "when" in the concluding clause means "if"—whether it implies a doubt or an explanation. My own attitude is one of doubt. From the viewpoint explained so carefully by Professor Pigou in *The Economics of Welfare* and implied in these pages as well, I should suppose that the preferences of the consumers are decisive and that it is their choices between present and future that settle the question for the economist. If they habitually discount the future, can the economist apply his organon otherwise than on that basis? When one begins to consider the interests of the community in the widest sense, problems of ethics rather than of economics would seem to confront us. But the subject is quite too large to be debated here. Whatever Professor Pigou says on this topic or any other is not to be briefly dismissed, and it would be ungenerous to cavil at any point on the manifold excellences of this performance.

F. W. TAUSSIG.

The Problem of Credit Policy. By E. F. M. DURBIN. London: Chapman & Hall, Ltd. 1935. pp. xxi, 267. 10s. 6d.

Mr. Durbin starts with an analytical chapter on the relations between consumers' income and outlay and capital accumulation and saving. Two chapters follow on the dynamics of the industrial and financial circulations, tracing the effects of an "injection" of money into the economic system, and of expansion through consumers' credits and producers' credits.

There follows a chapter on the Choice of Policy. The choice of objectives is between (1) the stabilisation of the price level of commodities, (2) a "constant circulation" (i.e. a constant total money value of transactions or turnover), (3) stabilisation of the consumers' income. Mr. Durbin advocates the last of the three, and proceeds to consider what statistical information and what methods of monetary regulation would be necessary to carry it into effect.

Mr. Durbin is one of those economists who make monetary theory much more difficult than it need be, in that by introducing hypotheses, ostensibly of a simplifying character, they raise problems which are quite different from those of real life, and which therefore do not need to be solved at all.

For the purpose of his analysis he divides production into "stages," starting from primary production and passing through the various intermediate processes to the final sale. He believes these stages to be similar to those into which Professor Hayek divides the period of production, but that is a mistake, for Professor Hayek's stages are determined not by the character of the product but by the time destined to elapse before the activities of the original factors of production reach fruition in a sale to the consumer.

Mr. Durbin's stages are not a convenient instrument of analysis. The stages in one industry would not correspond to those in another, and his hypothesis of the injection of money "at a stage" has no definite meaning. His conclusion that the money "injected" tends to diffuse itself over the whole system till a new equilibrium is reached is sound and important, but his description of the manner of diffusion is open to criticism. His phraseology also is not very happy. He calls the final disposal to the consumer the "first" stage of production and primary production the last, and any stage "later" than that to which it supplies material. This usage has to be inferred from the context, and as Mr. Durbin sometimes says "last" when he means "first" (pp. 32 and 89), the reader may well be puzzled.

Mr. Durbin makes extensive use of the concept of "effective circulation" (M.V., or the total money value of transactions), and here also he sometimes forms a simplified picture, in which the effective circulation is equal to the gross total of the output of all the stages, and every stage holds a cash balance which is paid away for its costs and purchases of materials once in every "circulation period."

If any such simple formula were valid, effective circulation might play a very useful part in monetary analysis. But in reality it is the sum of several very discordant quantities, subject to large fortuitous fluctuations which may have very little bearing on the main problems of monetary policy.

In the analysis of producers' credits the concept of the total of transactions is once again invoked—money borrowed by producers, who have to pay interest, must be spent "on some kind of technical improvement in their property" (p. 72). It is therefore spent not on consumption goods but on "intermediate products." The money so spent is conceived as forming an addition to the turnover in the circulation period then current, and the producers who sell the intermediate products as thereupon exercising a choice between consumption goods and intermediate products as objects for the expenditure of the proceeds of sale. If, to start with, the expenditure on consumption goods in a circulation period is 100 and on intermediate goods 300, then producers' credits to the amount of 100 would raise the latter figure to 400. The recipients of the additional 100 must then decide how much of it they will spend on consumption goods and how much on intermediate products (pp. 71-7).

Surely this choice between consumption goods and intermediate

products is a complete fiction. People buy consumption goods out of income; they buy intermediate products out of circulating capital. The two are not alternatives at all, except only that if investments are to be included among intermediate products, they may be bought out of income.

When traders borrow to buy intermediate products from one another, the credit requirements of the sellers are decreased as much as those of the buyers are increased. Credit requirements *as a whole* are only increased in so far as there is new production. New production generates incomes, and incomes buy consumption goods and investments.

All production, except the services of the salesman disposing of goods to the final purchaser is production of "intermediate products." But it is none the less directed to maintaining the output of *finished* products.

Thus the introduction of intermediate products as an object of expenditure distorts the picture of the operation of producers' credits.

Mr. Durbin, along with very many contemporary economists, makes the gratuitous and fallacious assumption that producers' credits must in the main be spent on fixed capital. He does, it is true, mention that money "may be borrowed to increase the turnover of existing firms as long as the net profit position enables the borrower to pay the Rate of Interest" (p. 80), but he never pursues this possibility in his analysis. By assuming that bank advances for the purchase and holding of stocks of commodities are insignificant, or at any rate insensitive to credit conditions, it is possible to burden monetary theory with a tangled mass of paradoxes and difficulties, and to present the regulation of credit as an almost insoluble problem. Accordingly Mr. Durbin finds that the accepted methods of credit regulation through producers' credits require to be reinforced by a system of consumers' credits, to be provided through inflationary budget deficits (pp. 203-5).

Among the objectives of credit policy, Mr. Durbin's treatment of the stabilisation of the commodity price level is vitiated by the assumption that money wages do not rise. It follows, of course, that any increase of productivity must give rise to excess profits with an inflationary tendency. Regarding the output of capital as the essential vehicle of inflation, and "profit" as the measure of the motive for the output of capital, he is led to the conclusion that the inflation must get out of hand. Since he is concerned here with the secular growth of productivity of industry as a whole, which may be of an order of magnitude of three or four per cent. per annum and perhaps a good deal less, this conclusion is not very convincing. And there seems to be every reason to expect that in practice the growth of money wages would keep pace with the growth of output, subject to a slight lag.

Mr. Durbin's very sketchy ideas of profit are a serious defect in his book. He makes no clear or consistent distinction between profit and interest. Sometimes it is possible to fit a meaning to the word in its context, but sometimes his want of any theory of profit leads him into very faulty reasoning.

The "constant circulation" proposal is that of Professor Hayek. Mr. Durbin criticises it on the ground that capital accumulation increases the share of business transactions in the total circulation (M.V.) and therefore diminishes the consumers' income with deflationary consequences.

The argument might be put in more general form. *Any* objective other than the stabilisation of the consumers' income itself is consistent with a shrinkage of the consumers' income and therefore with deflation and unemployment. (Even stabilisation of the commodity price level is no exception; at times when scarcity demands a rise in the price level it involves deflation).

Mr. Durbin quite rightly selects the stabilisation of the consumers' income as the policy for preserving full employment. But stabilisation ought to mean growth in proportion to the growth of the factors of production, and for this he does not supply any satisfactory formula. In dealing with the growth of population and capital, he introduces needless complications in the form of the structure of production and the total of transactions. And when he comes to profit, the absence of any theory of profit leaves him helpless (pp. 159-161). That enterprise, as a factor of production, must be accorded a growth of income in proportion to its extension never occurs to him at all.

When he assumes that "the central strategic problem of financial power lies in the ability to raise, lower or maintain the volume of the effective circulation (M.V.)" (p. 195), he is once again introducing unnecessary difficulties. If credit regulation must act through the effective circulation, its effect upon the consumers' income will depend upon the relation between the consumers' income and the effective circulation, a very baffling problem on which Mr. Durbin's "simplified" illustrations throw very little light. In reality, credit regulation acts as directly upon the consumers' income itself as upon the effective circulation, and the latter can be left out of consideration.

The book contains some ingenious proposals for the provision of statistical data to assist in the regulation of credit (pp. 174-194). But once it is understood that statistics of effective circulation are not required, the greater part of the data proposed can be dispensed with. Indeed, existing statistical data are probably quite sufficient, in England at any rate, in combination with other channels of business information, to enable the monetary authorities to tell whether the consumers' income is tending to expand or to contract unduly.

In spite of all these faults (a great part of which may be put down to over-ingenuity) Mr. Durbin deserves credit for much acute reasoning, which in a number of passages reaches sound and useful conclusions. Nor is the book lacking in originality.

The work betrays signs of having been prepared for the press somewhat hastily, and the index is very inadequate.

R. G. HAWTREY.

Le Système Bancaire Anglais et la Place de Londres. By R. J. TRUPTIL.
Paris: Recueil Sirey. 1934. 293 pp. No price given.

Mr. Truptil in his first sentence modestly disclaims the intention of attempting anything beyond a "purely descriptive" account of the English banking system. But the value of description depends, of course, on the eyes of the describer, and Mr. Truptil's eyes are extremely intelligent and penetrating and also sympathetic. He writes primarily for French readers, but every English student of finance will profit by reading his book, which is shortly to be available in an English translation. It is not merely a case of the value of seeing ourselves as others see us, for Mr. Truptil has penetrated well below the surface and has worked out a very interesting statistical picture of the various components of the London Money Market. Moreover, he has ventured to do something, which English writers have usually shrunk from, namely to give lists in order of "importance" (though not of "standing" or credit rating) of the principal houses engaged in each class of banking business—joint stock banks, acceptance and issuing houses, discount houses and so on.

His general aim is to examine the banking organisation of London with a view to "isolating its essential characteristics" and showing how the different members supplement and balance each other so as to form a true money market. He describes in separate chapters the Bank of England, the joint stock banks, the discount houses and bill brokers, the acceptance houses, the "other" banks and the bankers' clearing, and then proceeds to discuss their inter-working through the "discount market" and the "money market." He concludes with three chapters on the comparison between London and Paris, the English banks and the crisis, and the City of London as a geographic, functional and social unity.

His treatment, as I have said, is not purely descriptive but includes some valuable quantitative measurements of the discount and acceptance markets. These are primarily based on the Macmillan report calculations which Mr. Truptil has checked and supplemented from other material and personal inquiry. He concludes that the total resources of the discount market, i.e. capital plus deposits and loans, have remained almost stable since 1927 (up to 1932) at about £235 million, of which £15 million represent proprietors' capital and reserves and about £100 million loans from the clearing banks, and the remainder loans and deposits from foreign and dominion banks and other financial institutions. The discount market, thus, has suffered no contraction through the crisis of 1931. It has made up for the shrinkage of commercial bills by increased operations in Treasury Bills and Government bonds. On the other hand, London's acceptance business has undergone an almost catastrophic decline, for, on Mr. Truptil's calculations, the total volume of acceptances has fallen from £328 million in 1928 to £149 million in 1932—a drop of well over 50 per cent. without allowing for the fact that the former figure is expressed in gold and the latter in depreciated paper pounds.

In his account of the 1931 crisis and the abandonment of the gold standard, Mr. Truptil studiously refrains from criticising the conduct either of the banks or of the Government. He concedes that a "draconic deflation" in August might possibly still have saved the pound, but for the rest he is disposed to admire rather than to criticise. He praises the exemplary calmness of the public (reinforced, as he slyly adds, by "a certain mental laziness") which, in conjunction with the remarkable strength of the British banks, enabled the country to escape the violent inflation cycle which nearly all continentals foretold. And he has nothing but admiration for the War Loan conversion, due not solely to the perfect understanding of market conditions by the experts, who prepared the loan, but to the "enlightened patriotism" of the British masses and to the example given by the whole City.

Mr. Truptil thinks that by the spring of 1933 Britain was "technically and psychologically" ready to return to gold. So far as the second adverb is concerned, I am inclined to share the doubts which M. Rist expresses in the preface which he contributes to the book. Much as I personally regret the fact, I do not believe that public opinion was then ready to surrender the short-term advantages of a free currency. On one other point I find Mr. Truptil a little less than adequate. He insists more than once on the supreme authority exercised by the Bank of England. So far as its relations with the City are concerned, that authority is an undoubted fact, but it cannot be denied that its power to exercise authority has substantially diminished. The "complete freedom of the Bank from political pressure"—one of Sir Ernest Harvey's postulates for central banks, which Mr. Truptil quotes—no longer exists in this country, and I am a little surprised that Mr. Truptil does not seem to have tumbled to the fact. The Bank conducts the Exchange Equalisation Account, but it conducts it according to principles laid down by the Treasury. It instructs the market as to whether and when and at what price it may issue trustee loans, but in doing so it transmits the "wishes" of the Chancellor and not its own.

One further small complaint—the list of errata is not nearly comprehensive enough, for one or two chapters abound in slips and/or misprints in names and dates. This, however, no doubt will be remedied in the English edition and I will close on no note of criticism. Mr. Truptil's book is a valuable and stimulating study which I have read with profit and enjoyment.

O. R. HOBSON.

The Theory of Money and Credit. By LUDWIG VON MISES. Translated by H. E. Batson. London: Cape. 1934. pp. 445. 18s.

This book, perhaps the standard work on the theory of money in the German language, was originally published in 1912. An English translation was long overdue; the present one is taken from the second German edition which appeared in 1924. Professor Robbins contributes an introduction, while Professor Mises has himself written

a new preface. The book is no easy one for beginners because of its austere and, in places, highly abstract character: of historical and descriptive matter there is much, but it is never introduced except when this is necessary to illustrate the analytical argument. But these are the characteristics which will recommend it most strongly to the sympathetic student. Part I, "The Nature of Money," classifies the functions and varieties of money and discusses its legal and social position. Part II, "The Value of Money," deals with the determinants of, variations in, and the measurement of the exchange value of money and with monetary policy. Part III is devoted to banking problems. The first two parts form an excellent textbook. Bordering upon fluctuation theory, if it appears more speculative in character, Part III is concerned with problems of the greatest intellectual difficulty. But the whole work is far more than a mere textbook: it embodies all that one of the ablest members of the Austrian school has to say about monetary problems.

This is no book to quarrel with: but if any lingering doubts trouble the reader the most serious will perhaps centre round Professor Mises' concept of the demand for money. If the demand for and supply of money both remain unaltered, or if they undergo identical variations, then according to the author the exchange value of money is unaffected. This suggests that a mere rise of productivity must be conceived of as increasing the community's demand for money. Professor Mises does not give a satisfactory account of this difficulty, but it is not perhaps one which in 1924 seemed very pressing. Nor can it truthfully be said, in my opinion, that the absence of any objective criterion of mean variation in the exchange value of money is of itself fatal to the tabular standard as a practical proposal. The crucial objections to a tabular standard lie elsewhere. Further, many readers, while accepting Professor Mises' theoretical position, will yet be unwilling to assent to his verdict that any "new organisation of the monetary system . . . will be all the better the less it differs from the system in force before the War." But the book remains a great one, and there is a sense in which it will never be superseded. The sections of greatest permanent interest will surely be his celebrated reformulation of the relations between the value of money and the rate of interest (Part III, Chapter V), his refutation of the nominalists (Part I, Chapter IV, and Appendix A), and his already classical discussion of the "little devices" (*kleine Mittel*) of monetary policy (Part III, Chapter VI).

The translation of a book of this kind presents its own problems. Mr. Batson has dealt faithfully with the text and is rightly not above adding the German word or phrase in brackets when this makes the meaning clearer. Many readers would probably have been even more grateful had he extended his note on Professor Mises' terminology to include a glossary of his own English equivalents, the meaning of some of which is by no means self-evident. The phrase "subsistence fund" for example will give trouble to some English readers; while "etatism" is hardly an English word at all, and a note might well have

been devoted to its Continental use. Many readers, too, will have difficulty over the distinction between "commodity credit" and "circulation credit," though the translation of these terms is literal enough. But besides being accurate, Mr. Batson's translation reads reasonably well, and that perhaps is the main thing.

HAROLD BARGER.

Unbalanced Budgets. By HUGH DALTON, BRINLEY THOMAS, J. N. REEDMAN, T. J. HUGHES and W. J. LEANING. George Routledge & Sons. 1934. 468 pp. 15s.

This book is a collective study of the financial policy of a number of countries during the period after the war. Dr. Hugh Dalton has done the editing, supplied an introductory part, and in a brief Part VII has tried to summarise the preceding studies and use them as the basis of a few conclusions and reflections.

Apart from this last-mentioned section, the book is primarily of a descriptive character. Thus in Part II Dr. Thomas has given an elaborate and systematic description (which leaves little to be desired) of German finances since the stabilisation of the mark. He has exploited the copious German statistics almost to perfection, and he has made a thorough study of the extremely complicated financial system of the country. This is a very valuable contribution, which others who wish to study German financial policy during this remarkable period will know how to appreciate.

Dr. Thomas' contribution occupies about 200 pages out of 460, and is thus by far the most extensive: this is due partly to the completeness of German statistics, partly to the great interest which attaches to that period in German history.

In Part II Mr. Hughes deals with Italy. The author does not concentrate so much on public finances as do the rest of the contributors, but he gives an account of the general economic policy of fascist Italy. As financial and general policy is so closely interwoven in that country this is, perhaps, only natural; at any rate the study is interesting; it places the rule of Mussolini in a quite favourable light. In the attack on price rigidities, which every country that retained the gold parity of their currency has had to make, the Italian government has proceeded more systematically and with greater success than other countries. All sorts of prices: wages, rents and retail prices have been reduced. Only debt contracts seem to have been sacred.

As to the financial policy, which was to be the main object of the study, it is somewhat neglected. We get, it is true, a clear impression of the character of the financial policy, but the general survey of revenue and expenditure closes with 1930-1 and thus does not cover the crisis years.

Nevertheless, Mr. Hughes' account is interesting. Italian financial policy during the crisis is remarkable for the fact that whereas the general economic policy has been genuinely deflationary (systematic reductions

having been made in the level of costs and money income) the financial policy appears to be expansionistic; there have been no attempts to cut capital expenditure for the sake of balancing the budget. The employment of the national resources has been considered the main object to be sought. There is no contradiction in such policy: on the contrary; for a country which does not wish to alter the gold parity of its currency during a period of a structural price fall it seems the most expedient policy to reduce the level of money costs and mitigate its incidental depressing effects by loan expenditure on public works and guarantees or subsidies to private industry.

Parts IV and V are written by Mr. Reedman and deal with the finances of France and nine other European countries respectively. The most conspicuous feature of French financial history during the period under review is the great expansion of the budget in the prosperity years following the stabilisation of the franc and the vain attempts at contraction of expenditure during the crisis years with their drastically falling revenue. The consequence has been large deficits, and in spite of serious efforts it has not as yet been possible to attain the goal of a balanced budget. Whereas in the other countries described in the book the budget deficit has not been incompatible with a reduction of interest rates on State credit, France has had to borrow at rising rates of interest. All the difficulties involved are thrown into clear relief by Mr. Reedman.

The treatment of the nine countries dealt with in Part V must necessarily be very brief. Nevertheless, the author has, as far as my knowledge goes, succeeded in drawing forth just the most characteristic features of the financial development of each country. The introductory chapter gives an admirable survey of the scope and nature of the problems dealt with in the chapters which follow.

I think, however, that the author somewhat overvalues the importance of the clear distinction between "current" and "capital" expenditure in budgets such as has been introduced in the Danish budget. The concept rests on an analogy with the book-keeping of private enterprises for which the comparison between assets and debt is of great importance. To a public body such as the State the term "net assets" is without definite meaning. The assets of the State are the taxpaying capacity of its citizens and the stability of the government. In a sense most of the expenditure of a government may be termed "capital expenditure"; it may form a basis for increased future income of the citizens or a prevention of deterioration.

Neither is the distinction between "current" and capital "expenditure" any guarantee against "window-dressing" of the budget; on the contrary, that art may be performed most perfectly under the system. An expenditure which is in reality a subsidy yielding no future income whatsoever to the treasury may be granted in the form of a loan and charged to the capital budget, thus appearing in the list of assets. In one respect the distinction may serve a useful purpose; when during a depression it may be deemed expedient to finance by loans instead of by

taxes to the largest possible extent, and when there is a prejudice against such a practice—which is the case in most countries—it may serve as a means of camouflaging the borrowing policy and thus deceiving a nervous and ignorant public opinion.

In Part VI Mr. Leaning gives an account of the means by which Australia and New Zealand have attacked the depression. These countries have been eclectic in their policy of applying wage cuts, compulsory conversion and currency depreciation, and yet there is no doubt some truth in the statement made by Dr. Dalton that it is the rise in the price of wool which is the main factor in Australian recovery.

Apart from Dr. Dalton's brief conclusions and reflections in the closing section, the book is, as has been mentioned, descriptive. The comments incidentally made on the economic implications of the measures described are, in most cases, of an orthodox nature: unbalanced budgets are an evil, even a danger; a deficit caused by "capital" expenditure is considered to be more excusable, less dangerous than a deficit on "current" account; the conversion of "floating" debt into "funded" debt is considered essential to currency stability, and repayment of debts is invariably considered to be a virtue.

I am unable to agree with the authors in their orthodox views. Whether a policy or measure is "good" or "evil" depends on the general political aim of the government in question. This aim has not varied much from country to country. Generally speaking the main object has been to provide means of employment of the country's resources, especially the human factor; a subsidiary aim has been to maintain a certain rate of exchange with other currencies, yet hardly ever as an end in itself, but as a means to the primary object.

From this point of view an unbalanced budget need not be an evil; it may even be the most expedient means to the end. Further, I do not see what difference it makes whether the deficit is due to so-called capital or current expenditure, to reduction in taxation or to increased expenditure. The psychological reaction of the people may be different, it is true, and that is, of course, very important, but the economist ought to enlighten the people instead of supporting their irrational views based on false analogies from private business.

Neither do I see why "funded" debt always ought to be preferred to "floating" debt, or why the latter is more dangerous to currency stability than the former. Of course, if the central bank is a private or at any rate "independent" institution, which, regardless of the government's general policy, carried on a policy of its own, then it matters very much whether the debt is floating or funded. Now this is in fact the case in most countries, but in such circumstances no government can carry on any economic policy. Again, economists ought to enlighten the people that such a state of affairs is only compatible with pure economic liberalism, which is decidedly a thing of the past.

For these reasons I disagree with Dr. Thomas when he points to the danger of the large floating debt which Germany has incurred during the

last couple of years. In countries like Russia, Italy and Germany where not only central banks are government departments, but even "commercial" banks are under government supervision, it is as far as I can see a pure formality whether the "debt" has the one or the other form, and it may at will be transformed from the one to the other.

Here I should like to make a few comments on two further points in Dr. Thomas' monograph. On page 150 he informs us that a large proportion of the sums expended on public works are invested in road building and soil improvement, and he asks whether, in view of the scarcity of capital from which Germany has long been suffering, the sinking of large sums in such one-sided manner can be advantageous. But is there really a scarcity of capital in Germany? We have often been told that Germany's capital equipment is perfect and plentiful and a menace to foreign competitors. Further, what does it mean that scarce capital is deflected into roads and soil improvement? What happens is presumably that idle labour and the capacity of idle plant is invested. Whether that is advantageous or not depends on what other means of employment are available. At any rate such investment ought to be preferable to unemployment.

On page 153 Dr. Thomas tells us that the National Socialist Government, under a certain group within the Hitler Plan will get its new network of roads built in return for the unemployment dole, supplemented by some clothes and meat and, he adds, "If wages in German industry generally can be *gleichschaltet* to this coolie level, Hitler will have gone a long way to conquer unemployment." The statement is hypothetical, but let me ask: Why should the level be more "coolie-like" when idle people are given employment than when they remain unemployed? And further, if it is financially unsound to finance public works through the issuing of treasury bills, which Dr. Thomas seem to hold that it is, what else can the government do than cut the wages to the dole-level?

Returning to the question of finance I hold that in a world such as it is to-day with national currency systems and extensive State intervention in economic life the canons of sound finance laid down by financial theorists under the influence of the mentality and experience of private business men are invalid. Public finances should be managed as an integral part of the general policy of the government. Whether a budget deficit should be incurred and how large it may be; whether expenditure should be financed by drawing directly on the central bank, by selling State obligations of one or other description to the public or by taxation, depends on the general economic situation. The same applies to the question of debt redemption; debt should never be redeemed simply because it is a good principle to pay one's debt, for a public debt is of a different nature from a business debt; it should be repaid only if the effects of repayment are in harmony with the general social and economic policy which the government is carrying on.

JÖRGUN PEDERSEN.

Are Trade Unions Obstructive? An Impartial Inquiry. Under the joint editorship of JOHN HILTON, J. J. MALLON, SAM MAYOR, B. SEEBOHM ROWNTREE, SIR ARTHUR SALTER, FRANK D. STUART, assisted by VIDA M. S. HEIGHAM. Gollancz. 1935. 349 pp. 5s.

As a description of current trade union policy in Great Britain, especially of the various devices adopted for keeping down output, this is a very useful study. Current practices in respect of demarcations, "ca' canny," opposition to payment by results, objections to overtime, apprenticeship restrictions and so forth are detailed for the leading industries. The account incidentally gives us also a welcome record of the ideas and pleadings of unions and managements in respect of the goodness or badness of these devices. Finally, the comments of the editors which conclude each chapter serve to remind us of the extraordinary confusion of thought on wages questions which can persist in the minds of otherwise enlightened persons who are unfamiliar with economic analysis. Written with commendable clearness, the book is comprehensive and well planned. It is a matter of regret, however, that men like Sir Arthur Salter and Professor Hilton should not have recognised the desirability of having, or have insisted upon having at least one economist with a competent grasp of wages theory on the editorial board. For the commentary is throughout didactic in tone, and the superficial plausibility of their advice only obscures the invalid grounds on which it is based. On these topics it is easy to achieve apparent realism by ignoring logical issues. Tactfully, or in conformance with the ideal of "impartiality," the reproofs of the authors are aimed equally at "employers" and workers. They maintain an equal neutrality in their approbation. But this does not make for a balanced study. Their comments abound in the most dubious of homilies and half-truths which are stated as though they were obvious common sense, as, for example: "It is in general highly desirable that jobs should be done by the persons who can do them best." "The dry rot of 'ca' canny' can moulder a union more surely than it can ruin an industry. No union can afford to play about with it."

Let us consider the approach which the editors have thought appropriate. The word "consumer" appears in the Introduction on page 9. "The consumer also has a right to be heard," we are told. After reading the book, we cannot remember having encountered the word again. How easy all problems of industrial relations would be if only the consumer could be disregarded. The authors may say that consumers' interest was throughout one of their tacit considerations. But surely so important an aspect needed *explicit* treatment. As it is, the assumption seems to have been made that all the real difficulties arise out of the bargain between employers and workers. The only impression of an explicit judgment that we get from the book is that restrictions are defensible or desirable when they result in both sides getting "a fair deal." If not, they are "obstructive." But exactly what principle of justice exists (apart from the question-begging one of "reasonableness")

is not discussed. The idea of capital and labour having opposite interests in respect of restriction of output is completely wrong. It is to the advantage of all producers co-operating in any industry (workers or owners of equipment) that output shall not be greater than a certain level, and if they can act in collusion to secure this result, they will. The authors sometimes seem to imply that, under modern industrial organisation, restrictions can be so shortsighted as to cause an output which falls short of the optimum for the industry. Those in an industry may, it is true, have wrong ideas as to where their advantage lies; but there is no *clash of interest* in this matter if consumers' interests are ignored. Under all forms of "joint monopoly" of labour and capital both parties may gain and neither lose through permitting the (monopolists') optimum output. Employers and workers both benefit from restrictions, and if the latter did not arrange them, the former would often do so in some other way. The source of disputes is the division of the proceeds between capital and labour; or among different firms on the side of capital, and different groups of workers on the side of labour. At no stage do we find any indication of the authors having perceived this basic factor; nor is there any sign of their having understood the connection between limitations of output which benefit the industry as a whole, and limitations arising from attempts by different parties engaged in production to obtain the largest possible share of the spoils.

This constitutes a most serious defect. It possibly arises because the authors have purposely tried to refrain from regarding as a "restriction" "the fundamental trade union wage policy of attempting to secure and maintain the highest practicable level of wages" (p. 13). But how can they do this? It is just like trying to discuss the various quota schemes and subsidised idleness adopted by cartels, whilst excluding from consideration the very object of that policy, namely, the maintenance or raising of prices! They say (p. 312) "Our view is that to defend and advance the share obtained by labour of the proceeds of industry is the cardinal object of the trade union movement, and, if resistance to a reduction of that share is to be held censurable as a 'restriction,' then the unions are damned from the start, and every other aspect of the matter we are examining is swamped by the wage issue." But *is* there any other issue? Surely the obvious purpose of all the restrictive practices which they discuss is that of raising or maintaining earnings. In thus shutting their eyes to the intention of these expedients, the authors set themselves an impossible task. Perhaps they desired to avoid touching on topics on which they may have felt certain to be refused a hearing by one side or other. If so, this attitude has prevented them from discussing rationally the very complex situation which exists when different groups of co-operant workers or industrialists are associated in a (formal or tacit) vertical combination.

Their confusion becomes all the more plain in the express exception they make for "the trade union enforcement of particular rates which

are, or have become, out of relation to rates in comparable occupations." They refer to these as "abnormal rates," and strongly disapprove of them, but there is no semblance of a definition of what constitutes normality in a wage rate. Had they tried to consider this essential point, they would have been forced to examine as a major issue the very problem they set out to avoid. Moreover, in referring to opposition to payment by results, and limitation of piece-work output, their attempt to exclude the question of wage-rates prevents them from encountering the true causes of difficulty. They refer to "labour's long and bitter experiences of high output followed by a cutting of rates" (p. 320), but apparently believe that little more has to be done to avoid piece-rate cutting than for employers "to make a sound job of estimating basic times"; and they describe a term in the engineering agreement to the effect that "changes in the piece-rates shall not be made unless there are changes in the methods or materials employed" as "a reasonable stipulation" (p. 320). Now such a stipulation may be reasonable (in the sense of being workable) for an industry enjoying a complete monopoly. Greater output per head can be countervailed by a reduced number employed. But for a firm endeavouring to survive in an unmonopolised market, or for an industry attempting to get down costs in a competitive world market, it defeats the very purpose of piece-rates. Of course, if one firm alone (supplying a small proportion of the total market) could increase its output through piece-work, the benefit might possibly remain with the firm and its workers; but when a whole industry goes in for payment by results and thereby adds to its productive efficiency, the price per unit of work done must fall if the larger output is to be sold. Why should the authors be inhibited (as they appear to be) from admitting this awkward truth? Its awkwardness would vanish if they were prepared to face reality.

The authors are no more helpful on the question of the displacement of labour by machinery. In a striking passage, they put the workers' point of view in all its strength. They quote a unionist who claims that he had "invested his life in the trade and everything he has is at stake" (p. 322). But they are merely emphasising the obvious when they remark that "text-book proofs that labour-saving machinery does not destroy employment mean nothing to him." No one would deny that the individual whose skill becomes obsolete does constitute a problem in the existing world. If this book had suggested practical schemes for compensating in some way those artisans who suffer from the fortuitous results of technological change, the recommendations would have been cordially welcomed. Unfortunately, concrete proposals are not put forward, and rather reluctant approval seems to be given to restrictions on the full exploitation of productive power. But are there no other means of achieving individual security than through the contrivance of scarcities? Progress of technique in itself provides for society at large a new source of production, or fund, which could conceivably be used for the compensation of those whose skill happens to lose its

value; and one would have hoped that a group of public men discussing the problem would have sought to show how this could be arranged. But to have tackled so complicated a subject, the authors would have needed recourse to the disparaged text-books. Moreover, technical advances are not the principal cause of the vicissitudes of displaced artisans. Surely the individual worker's insecurity to-day is mainly the product of wage-rate rigidity, demarcation, apprenticeship restrictions, and other practices which destroy economic mobility. Must we not blame, in short, all the results of attempts to secure private or group security? The problem of creating harmonious industrial relations and certainty of earnings under existing industrial organisation seems to resemble that of creating international harmony and economic security in a world of tariffs, import quotas, exchange-control and depreciated currencies. It is not necessary to elaborate the comparison. Paradoxical as it may seem to those who are accustomed to blame competition for the instabilities created through the disintegration of private or State monopoly, the ultimate source of all social stability lies in the alternatives which a free market offers. The achievement of such stability will obviously involve gradualness in the dissolution of protected income-rights; but policy in this matter must await enlightenment among the leaders of public opinion.

We regret to conclude that whatever good this enquiry may accomplish along the lines of discouraging the more obvious forms of restriction of output, it can accomplish nothing at all in the way of promoting rational thought on contemporary labour questions. On the contrary, the danger is that its whole effect will be to darken counsel. For in its suggestion that many of the existing practices are "reasonable" and not "obstructive," it diverts attention from the reality that all effective union action in the wages field, defensible or indefensible, rests upon the diversion of productive power from where "individual self-interest" would otherwise direct it. In admitting the essentially restrictive nature of the expedients of organised labour, the authors would not have been denying the validity of the ideal of distributive justice and security for the worker.

W. H. HUTT.

Population Theories and their Application, with Special Reference to Japan. By E. F. PENROSE. Food Research Institute, Stanford University, California. 1934. 347 pp. \$ 3.50.

Ever since the decrease of fertility became apparent in the territory covered by western civilisation European and American writers have pointed to China and Japan as countries with an enormous fertility. The evidence they presented was more or less anecdotal, and the explanations they gave were rather mystical. But their contentions remained practically unchallenged, and it is to-day almost generally accepted that fertility in the Far East, on the whole, is unhampered by birth-control and, due to ancestor-worship, is excessive. The author of

this book deserves credit for having exposed the fallacies underlying this general belief. His argument runs about as follows:

"The highest birth-rate shown for Japan is under 35 per 1,000," and "for more than a decade, probably for more than two decades, the fertility rate has been falling in Japan." This fall "has been largely due to consciously practised birth-control," which is supported even by conservative politicians and newspapers. "Data on China are more limited, but certain quantitative investigations based on samples do not indicate that there is anything exceptional in Chinese fertility. . . . It would probably be unnecessary to go back very far in the history of the United States to find a farm family of about the same size as the present Chinese family." "Unless knowledge of contraceptive methods, or the practice of abstention, in China are presupposed, it cannot be legitimately inferred that the conception-rate is higher than it would have been in the absence of ancestor-worship." "There is plenty of evidence that abortion is practised in countries in which ancestor-worship is strongly rooted. . . . It seems that the situation in Japan as regards abortion is much the same as the situation in Western countries where ancestor-worship is not practised." Nor is ancestor-worship "a safeguard against the practices of infanticide." "It is held that more care is shown in the upbringing of male than of female children, and that this discrimination arises out of the desire for male successors to carry on the family line. But such discrimination in favour of males tends to cause an excess of males over females and to render the proportion of fertile women of child-bearing age to the total population less than it would otherwise have been, thus carrying us further away than ever from the view that ancestor-worship stimulates the growth of population."

We have confined ourselves to quoting some passages from the chapter "The Increase of Population." Other chapters which deserve special attention are "The Welfare Optimum Population"; "Population, Food, and Agriculture"; "Population and Conflict."

Penrose's most important conclusion is: "Japanese political expansion on the Asiatic mainland since September 1931 cannot be interpreted in terms of economic necessity arising out of over-population within Japan proper." From the standpoint of the economic interests of the Japanese people as a whole, this aggressive policy "shows a lack of realism."

R. R. KUCZYNSKI.

Wage Policy and the Price Level. By K. S. ISLES. P. S. King & Son. 1934. 256 pp. 9s.

The theory of wages has hitherto been chiefly concerned with long period adjustment. It has been shown that under conditions of general competition and in a period sufficiently long for technical changes to be made, the volume of employment will be determined by the relation between money wages and the value of the physical marginal product of labour. For shorter periods—when fixed capital cannot be adjusted

to a larger or smaller labour force—most economists have been content to assume the problem of distribution to be “indeterminate.” That is to say the conditions of competition are not sufficient to determine the demand for labour. They would subscribe to Dr. Hicks’ view as to the limited significance of the conception “the net product of labour,” i.e. the gross value of the product minus the charges attributable to the fixed capital. This analysis leads to the conclusion that the demand curve for labour is only determined in the short period if two conditions are fulfilled: (a) that labour is wholly a variable charge, and (b) that it is the only variable charge. If the return to labour is part of the fixed charges in the firm, then wages are not paid wholly out of the variable net product. On the other hand if labour is not the sole variable charge there are at least two factors of production with claims on the net product. There is then no method of discovering the specific contribution of each. The latter condition would appear to be the most common. After the necessary overhead charges of a business have been met it is normally true that the variable expenses include both the wages that enter into prime costs and the profits on ordinary stock. It is this distribution of the net product which appears at first sight to be necessarily indeterminate in the above sense.

The essential part of Mr. Isles’ book lies in his unwillingness to accept this position. He makes a determined and courageous attempt in Part II to break into the new and difficult field—the construction of a *determinate short-period demand curve for labour*. In Part II he extends his survey in order to consider the effect of wage variations in an industry upon other industries, and in Part III he deduced certain conclusions about policy based upon his analysis. Finally, in Part IV, he examines the course of wages, prices and employment in recent English and Australian history in order to discover the variable factor responsible for the wide historical movements of prosperity and the demand for labour.

It is quite out of the question to follow Mr. Isles through all the steps of his intricate argument. He has written a closely reasoned book. All that it is possible to do in a short article is to examine his construction of the short-period demand curve for labour—a construction lying at the very centre of his argument—and his attempt to extend his analysis to the conditions of a monetary economy.

Mr. Isles’ account of the shape and determinants of the supposed short-period curve falls into two parts:

1. He begins (in Chapter IV) by considering the *marginal gross product curve*. This is a curve which shows the reductions in the total output of the firm as successive decrements of labour are discharged. The technique of production remains unchanged. The reduction in the amount of labour employed can be brought about in two ways—either by discharging workers or by reducing hours. In either case certain quantities of raw material and “enterprise” will also be forced out of employment through the rigidity of technical conditions. But

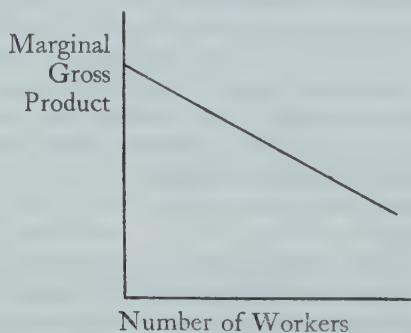
in all cases the reduction in gross output will grow larger as workmen are discharged, in so far as:

(a) the idle machinery can be used advantageously by the reduced number of workers,

(b) the machines are of differing efficiency,

(c) there is any increase in the effectiveness of management as the scale of production is reduced.

It is conceivable that some of these changes will be disadvantageous to production but it is highly unlikely. On balance the results of short-period reorganisation are likely to be positive. The marginal gross product curve will fall to the right:

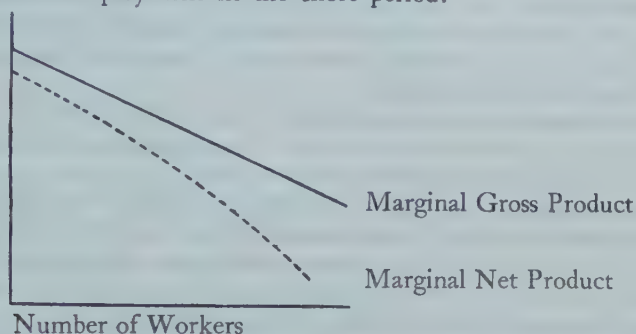


2. But this is a gross product curve and includes both the change in product to be attributed to labour and the product derived from the resources made idle by fixed technical coefficients. From the point of view of labour the problem can be regarded as that of determining the amounts which must be deducted for the other factors. These other factors are: (i.) raw materials, (ii.) "enterprise." Enterprise is to be identified with the share of the product that can be claimed by the property rights responsible for risk and management in the firm.

Mr. Isles thinks (pp. 88-9) that both these shares per unit will rise as more labour is taken on and fall as more labour is discharged. The increasing share claimed by raw materials and enterprise is to be attributed to two different sets of causes. The share received by the raw materials manufactured in other industries will rise because their short-period supply curve is supposed to rise. The share that can be claimed by enterprise rises for two reasons: (a) because the risk associated with the enterprise increases as the scale of production grows larger, (b) the utility of income in terms of effort on the part of the entrepreneur falls as production expands. For both these reasons the average and marginal cost of "enterprise" will rise as the firm produces more and employs more labour. Conversely the deductions to be made from these factors will fall as labour is discharged.

Mr. Isles is now in a position to deduce the shape of the true short period *marginal net product curve* for labour. The marginal gross

product curve will decline to the right and the deductions for enterprise and raw materials will rise to the right, so that the marginal net product curve will be convex downwards to the right. Such a curve makes wage reductions very unlikely to produce substantial increases of employment in the short period:



In order to obtain this interesting result it will be obvious that Mr. Isles must assume that the short period supply curves of the other factors are both real and determinate. Without disputing the wisdom of this view in the case of raw materials there seems to me to be the most substantial reasons for rejecting a similar conclusion in the case of the supply curve of "enterprise" and this for a number of reasons:

1. In the first place it is not at all clear that the "entrepreneurial function" is necessarily increased in any real quantitative sense when production expands or is reduced when production contracts. It is quite probable that the entrepreneur will have to work harder in order to reorganise and subsequently sustain a smaller labour force. In so far as the activity of management is distinguished from that of continuous co-ordination¹ the reduction of management labour may increase the amount of co-ordination necessary to efficiency. Thus the conception of a determinate quantity of entrepreneurial labour associated with each volume of production and varying with it dissolves into mist.

2. Nor is the variation in the quantity of the risk factor any plainer. It is not obvious that the degree of risk can be assessed quantitatively or that it varies in any direct way with the scale of enterprise. In the short period the fixed capital is fixed. It has to remain in the firm and cannot be changed in form. Why then should the amount of risk employed in the concern be reduced by the discharge of labour? Above all, *the degree of risk involved varies with the rate of wages paid*. The risk, that is to say, varies with the rate of wages it is supposed to determine. There is no true independence and therefore no true determinateness.

For all these reasons it is impossible to accept the view that the short period *enterprise supply curve* is real or determinate. If this is the case the deductions based upon its existence must break down. The determinateness of the share of property in the marginal gross

¹ See Kaldor, etc., *Economic Journal*, 1934.

product was based upon it and therefore disappears. We are left in the original position—with the division between variable wages and variable profits in the short period undetermined by the conditions of competition.

Mr. Isles turns in Chapter IV of Part II to the effect of general wage reductions on the monetary position. He there comes to the surprising conclusion (pp. 148-9) that wage reductions in isolation will unequivocally reduce monetary investment. This is the case, in Mr. Isles' opinion, for two reasons :

(a) the reduction in the wage bill after prices have fallen will cause entrepreneurs to reduce their overdrafts. The quantity of money will then be reduced and prices will fall still further.

(b) As prices fall, those who own balances will tend to hoard them since their value is rising. Investment will be still further reduced.

Without in the least denying that general wage reductions may be deflationary I cannot see that Mr. Isles has proved that they will be. He has wholly neglected the effect of a reduction of wages on the level of costs and the current profit position of capitalist enterprise. The general level of money costs is necessarily reduced. As a result, the marginal cost curve is shifted downwards in all firms, and the point of intersection between it and the marginal revenue curve is shifted to the right. A tendency to do a greater volume of business at a greater profit involving a large monetary turnover is bound to arise. A greater demand for balances is likely to follow.

It is not true in my view—as certain economists have always assumed—that this source of expansion is the dominant influence. Before any final answer could be given it would be necessary to analyse the distributional consequences of the change in money wages and the effects on the level of absolute profits in the various parts of the industrial system. It is simply not enough to say as Mr. Isles says on pp. 148-9 of his book :

“... The first result of the lowering of wages rates is that entrepreneurs will have to pay out less money in the form of wages. They will therefore have to borrow less from the banks. If they borrowed an equivalent amount either for their own consumption or for installing new capital goods this need make no difference. But they are *not* likely to do so unless the banks take active steps to induce them to ...”

The essential point which Mr. Isles has neglected is that such an inducement appears automatically from the reduction of money costs.

Mr. Isles has written a stimulating book that will be of value to all those interested in problems of wage policy. It is not an easy book. It is closely reasoned, and Mr. Isles makes few concessions to the difficulties readers will feel in following his views or the steps of his argument. But few serious students of this part of economic theory will care to be without Mr. Isles' somewhat austere aid.

E. F. M. DURBIN.

Dynamic Economics. By C. F. Roos. The Principia Press, Bloomington, Indiana. 1934. xvi + 275 pp. 15s.

We are here presented, not with a uniform dynamic theory of economics as the title of the book might suggest, but with a series of separate studies, very loosely connected and of variable interest and quality. Dr. Roos considers, for example, a number of general topics in a vaguely descriptive manner. At various stages, we find observations on the growth and decline of industry, on price-fixing and on capitalistic *versus* socialistic economics. These sections of the book can only be described as unconvincing.

Some of the studies, on the other hand, are highly abstract and mathematical. Dr. Roos gives mathematical formulations of the demand for consumers' goods and for capital goods which take past prices and other "dynamic" factors into account. The use of these formulations requires the theory of integral equations, a very formidable branch of mathematical analysis. Fortunately, perhaps, few actual applications of integral demand laws are made in the studies under review. Dr. Roos usually finds it convenient to make special assumptions which reduce his complex demand formulæ to more ordinary forms. These theoretical studies, together with the rather confused accounts of production and cost, contain an unnecessarily large amount of terrifying mathematical symbolism and can only be studied by a pure mathematician. The theoretical economist with limited mathematical equipment will be attracted, however, by the quite simple analysis given by Dr. Roos of certain problems of joint demand. Some interesting, and eminently reasonable, conclusions are deduced concerning the problem of "loss leaders," i.e. the marking down of one good to encourage the sale of a second good which is in joint demand with the first.

There remain, finally, two statistical studies of first-rate importance, studies which, by themselves, make the book worth while. Dr. Roos, in collaboration with other N.R.A. research workers, has undertaken investigations into the demand for gasoline in certain American States and into the factors affecting new residential building in St. Louis. The methods and results of these investigations are described in two fascinating chapters which stand out unmistakably from the rest of the book. The investigations are notable for skilful use of limited data and for the derivation of highly ingenious and convincing statistical "laws." The formulæ which express the "laws" are obtained empirically, by the application of "enlightened common-sense," and show what can be done in the way of combining a large number of factors and indices into a comprehensive formula for the description of actual facts. The method of construction of these formulæ deserves close attention. It is only to be regretted that the available data were not more complete and more comprehensive. But this is a familiar complaint of the econometrician.

R. G. D. ALLEN.

Grundprobleme der theoretischen Nationalökonomie: II. Der Gesamtprozess in der Entwicklung, By HANS PETER. Stuttgart: Verlag Kohlhammer. 1934. 170 pp. RM. 9.

The book under consideration, which treats of dynamic problems, cannot be understood without a knowledge of the author's previous work (1933) dealing with the static theory. Peter seems to be a disciple of Oppenheimer, who himself based his theories to a certain extent on Marx. It is from Oppenheimer that Peter derives his theory of interest, which maintains that the interest rate is due to the existence of private property in land (Oppenheimer) and apparently, in the opinion of Peter, also to the unequal distribution of private property in other things. This private property creates, according to these authors, a sort of monopoly for the proprietors, putting them in an advantageous position when hiring the services of non-proprietors. Thus these latter do not receive the whole product they have created, and the surplus flows into the pockets of the capitalists as interest. In an "autergen Wirtschaft" (Peter) where goods can be reproduced at will or—what, in the opinion of the writer—seems to be the same thing, where no inequalities of wealth exist, we shall have no rate of interest. This comes into existence only in an "allergen Wirtschaft," where we have such inequalities in ownership of property.

On this basis Peter endeavours to solve in his second book certain dynamic problems. First of all he puts forward a subjective theory of saving, confining himself to examining to what an extent an individual will save under certain conditions. He then develops a "pure theory of economic progress." After the discussion of the problem of how to eliminate the fluctuations of the value of money, he goes on to develop a formula measuring productivity in an economic system, together with other formulæ which give the proportion of wages to the national dividend and to the proportion of profits and represent Marx's rate of profit and rate of surplus value. He then tries to illustrate the circulation of goods in a progressive economic system by the aid of tables, which are analogous to the well-known tables of Marx showing the process of accumulation. In the next section Peter examines, with the aid of the above-mentioned formulæ, how certain items in the formulæ alter if others are given—for example, how the productivity changes if the development of the gross social product and of its two parts, the net social product and the amount of the produced means of production, are given. After some modifications of his results with regard to the subjective theory of value and an excursus on the law of the falling rate of profit of Ricardo and Marx, Peter tries to fill out his theoretical formulæ by a quantitative analysis of the development of capitalism in Germany. The book closes with a mathematical appendix.

Apart from questions of detail as to the correctness and usefulness of his formulæ, there are, in my opinion, two main objections to Peter's

book. The first concerns his theory of distribution. Almost all economists of our days will disagree with his theory of interest, which is in fact untenable (cf. the criticism of Oppenheimer by Schumpeter, *Archiv für Sozialwissenschaften* 1917-18). Since Peter bases many conclusions on this theory, these conclusions become therewith equally untenable. My second main objection is that Peter's theory of economic development is, strictly speaking, not an *economic* theory; it does not show how saving and the accumulation of capital acts on the *price system* and brings about a certain effect by *movements of prices*. Peter only *computes mathematically* some possible results. In spite of later modifications from the point of view of the theory of value, Peter does not really apply the apparatus which economic theory places at our disposal for the examination of the effects of changes in the data of the economic system. Nevertheless, it cannot be denied that his book contains some very acute analysis in its details.

F. LUTZ.

Communications in the Far East. By F. V. DE FEJLNER. King & Son. 1934. pp. 352. 15s.

Cotton Industry and Trade in China. Two volumes. By M. D. FONG. Nankai Institute of Economics, Tientsin. 1932. pp. 356, 116. \$5.00.

Grain Trade and Milling in Tientsin. By M. D. FONG. Nankai Institute, Tientsin. 1934. pp. 142. \$2.00.

Terminal Marketing of Tientsin Cotton. By M. D. FONG. Nankai Institute, Tientsin. 1934. pp. 47. Price not given.

In his *Communications in the Far East*, Dr. Fellner has collected an imposing array of facts and figures relating to a most important, but hitherto somewhat neglected, subject. He points out that since the War the shipping and commerce of the Far East have increased with unexampled and unexpected rapidity, and his main thesis is that this area is destined in the near future to replace the West as the "nodal point" of world economic competition and interest. "It will be in the countries of the Far East" he says, "that in the near future the economic struggles of the large nations of the world will take place . . . the importance of these countries will probable continue to increase parallel with the economic decline of Europe." But a necessary prerequisite of such a fundamental change is an immense development of means of communication, especially in China. It is therefore important to survey the present state of means of communication in the Far East, and the chief problems connected therewith. With this object Dr. Fellner proceeds to describe and discuss—most systematically—the railways, maritime shipping, inland river navigation, roads, motor and aerial transport, urban communications, posts, telegraphs, and wireless and telephone systems of the principal countries of the Far East. He concludes with a most interesting section on the lines of communication between the Far East and other parts of the world. Although Dr.

Fellner has apparently no first-hand knowledge of the Far East, he has undoubtedly succeeded in compiling a most valuable work of reference.

One or two criticisms suggest themselves. In quoting trade figures he tends to pick out one or two years only, these giving little indication of the general trend of trade. The section on road and aerial traffic in China is most inadequate and disappointing, as he completely ignores recent surprisingly rapid developments in these spheres in certain areas. The bibliography is somewhat limited, especially as regards works published in English. Moreover, whilst he is undoubtedly a master in his own subject, when dealing with matters only indirectly related to communications he is apt to make unwarranted statements. For instance, in quoting Chinese statistics, he fails to warn the reader of their unreliability, whilst he states categorically that in China there are no agricultural holdings of more than 25 acres. This appears to be an unwarranted extension to the whole of China of the results of an enquiry relating only to certain districts in Chekiang. His suggestion that Manchuria will serve as an almost unlimited area for Japanese emigration lacks discrimination. Finally, the paucity of maps is greatly to be regretted. Nevertheless, the work contains much valuable material and will prove a real boon to students of Eastern affairs.

Mr. Fong's careful and comprehensive compilations on the Cotton Industry and Trade, and on the Grain Trade of China, form numbers 4 and 5 of a series of studies on Chinese industries issued by the Nankai Institute. His study of the Terminal Marketing of Cotton in Tientsin forms a valuable adjunct to the former. The object of the Nankai Institute is to teach economics on a national basis, and to vitalise teaching by means of research. It is well known how incomplete and unreliable Chinese economic and statistical data are, and these studies should be warmly welcomed. Mr. Fong has brought together all the available statistical information, with illuminating criticisms and amendments, and has added the results of certain personal investigations. The study of the Cotton Industry and Trade extends to the whole of China, and deals (so far as information is available) with every aspect of the subject, including labour problems. It is illustrated throughout by copious charts and diagrams. Volume I includes a detailed study of marketing methods, about which little information has hitherto been available in English. Volume II consists entirely of statistics.

The study of China as a whole is supplemented by the volume on Terminal Marketing in Tientsin. Mr. Fong points out that raw cotton passes through three types of markets—local, primary and terminal—the first two types being found all over the cotton regions, whereas terminal markets are limited in number, the most important being found in Shanghai, Hankow and Tientsin. Tientsin is the terminal market for the cotton produced in Hopei and for some cotton from neighbouring provinces, and is of outstanding importance, as whereas the hinterland of Tientsin only produces 15 per cent. of China's total cotton crop, Tientsin in 1932 exported no less than 93 per cent. of China's total

cotton exports. This reveals a greatly increased concentration of cotton exports upon Tientsin, only 12.7 per cent. of China's total cotton exports having been shipped from Tientsin in 1911. Normally, the bulk of cotton exported from Tientsin has gone to Japan, but the last few years have witnessed a substantial decline in Japan's share. On the other hand more and more of the handling of cotton for export has passed into Japanese hands, no less than 85 per cent. of the total having been handled by Japanese exporters during the last few years. Cotton marketing in Tientsin has not, however, yet been placed upon what can be called an "organised" basis, but is carried on in a number of cotton houses where "cotton dealers and agents of cotton frequent inns for the disposal of their stock."

The volume on the Grain Trade refers only to Tientsin, but here again the description of marketing organisation and methods, and of recent changes therein, are of particular interest, whilst useful recommendations are made for future improvement.

VERA ANSTEY.

Industrial Policy of India, with Special References to Customs Tariffs.

By C. N. VAKIL and M. C. MUNSHI. Longmans. 1934.
pp. 176. 9s.

India's Foreign Trade since 1870. By P. RAY. Routledge. 1934.
pp. 272. 12s. 6d.

Child Labour in India. By R. K. DAS. Geneva. 1934. pp. 79. 1s. 6d.

It is rather a curious fact that the first of these volumes, on industrial policy in India, concentrates almost exclusively upon tariff structure and policy, whilst the second, on Indian foreign trade, hardly mentions tariffs at all! Professor Vakil and Mr. Munshi's treatment of their subject is justified both by their sub-title and by the intrinsic importance of tariffs, but Mr. Ray should surely either have included an account of tariff policy and some consideration of the effects of tariff charges on the course of trade, or else have modified his title, which might well have suggested that the author's main interest is in the relation between currency and exchange factors, on the one hand, and trade developments, on the other hand.

The main thesis of Professor Vakil and Mr. Munshi's book is that the chief instrument of industrial policy in modern times has been the customs tariff, that in view of the world-wide trend towards a system of planned economy, and acceptance of a policy of protection, the importance of tariff policy is unlikely to decline in the immediate future, and hence that it is of fundamental importance that India should adopt the best possible tariff system. They believe that the existing policy of "discriminating protection" (particularly in so far as it involves Imperial preference) is inadequate, and unsuited to Indian conditions, and that it should be thoroughly overhauled and replaced by a tariff based on a scientific analysis of India's economic policy and problems. With the object of suggesting the lines along which tariff reform should

proceed in India they sketch recent world-tendencies with regard to commercial policy, describe the tariff policy hitherto pursued, then discuss what should be the goal of industrial policy in India, and the most suitable machinery and procedure to attain the desired goal. Finally, they analyse the existing Indian schedules, which they criticise in the light of tariffs in other countries, and propose a new schedule and new tariff rates designed to incorporate their principles. The authors are concerned throughout not with theories but with practical methods of attaining accepted ends, and their detailed proposals contain much that is interesting and stimulating.

Mr. Ray devotes Parts I and II of his book to tracing and accounting for trade developments in India between 1870 and 1930. These chapters contain a useful account of general trade developments, well illustrated by tables and diagrams, although it may be suggested that they could, with advantage, have been compressed. Indeed, the whole volume would have been improved by the application of the pruning knife.

In Part III, Mr. Ray presents his main thesis—that the course of exchange and changes in exchange and currency policy have had far less potent effects on trade development than is generally believed. He attempts to establish this thesis by an elaborate analysis correlating trade statistics with changes in currency and exchange, and concludes that the latter have had little or no influence on the course of trade. The figures certainly tend to prove that the influence of currency and exchange factors on Indian trade has been exaggerated, and should help to spread a more balanced view of the whole subject.

Mr. Das' pamphlet on Child Labour in India consists of a reprint of two articles already published in the *International Labour Review*. It was a happy idea to reprint these articles in this handy form, as they contain the best extant account of the conditions and problems of child labour in organised industries in India, and of the legislation affecting such labour. It is encouraging to note the very considerable recent reduction in the numbers of children employed in organised industries, and also the success of legislative and administrative measures restricting and protecting child workers. The number of children employed in factories subject to the Factories Act was reduced from 74,620 in 1923 to only 26,932 in 1931. In addition to advocating the extension of protective legislation Mr. Das puts forward a strong plea for birth-control and for the extension of compulsory education.

VERA ANSTEY.

The Rise and Growth of Joint-Stock Banking. Vol. I (Britain: to 1860).

By S. EVELYN THOMAS. Pitman. 1934. 688 pp. 20s.

The reader who has carefully noted the title of this book has two surprises in store for him. First, Mr. Thomas has forgotten that "Britain" extends beyond the Tweed. The history of joint-stock banks in Scotland, their native country, would have been of great

interest; but, apart from a few pages on the problems of the Scottish note-issues in the middle of the nineteenth century, the banks beyond the border are entirely disregarded in this book. Secondly, the term "joint-stock banks" having in this country assumed a particular significance, it is surprising to find that the title covers the rise and growth of the Bank of England, as well as of the "joint-stock banks" in the ordinary sense of the term. It is true that during the important period 1822-33 the problems of central banking, note-issue, and general banking structure were inextricably mixed in public opinion—and for those years no account of the one would be complete without almost as full an account of the others. Excepting those years, however, the history and problems of the Bank of England are sufficiently different from those of the "joint-stock banks" to justify separate treatment—which in fact Mr. Thomas has accorded them.

The most useful chapters of the book are undoubtedly those concerning the ordinary joint-stock banks. The documents of the 'thirties, particularly the evidence before the Committees of 1836-8, are not new to us, but Mr. Thomas has performed a valuable service in providing summaries which will be within the compass of a student's reading. Mr. Thomas has relied almost exclusively on these official papers and the already well-known pamphlets. This restriction of his sources, in support of which the author may well plead necessity, has the unfortunate effect of producing an account of the early shortcomings of the joint-stock banks rather than a balanced view of their infancy. The reader is accordingly apt to be unduly impressed by Mr. Thomas's judgment that rediscounting was "the great curse of banking at this period." Rediscounting may have been, on the whole, something much more useful—the account in this book does not allow us to judge. When the author's reliance on official sources tends to emphasise the weakening effect of legal disabilities, the reader may well be reminded of the old adage (quoted elsewhere in the book) that good banking is made by good bankers rather than good laws. The 'thirties provide as good illustrations of this as any period, as Mr. Thomas would certainly agree.

The last chapter in the book goes far to remedy the reader's perspective, as it endeavours to give a more positive account of the conditions of the ordinarily prosperous banks in the middle of the century. Undoubtedly this chapter contains the author's most useful contribution to British banking history.

The chapters on the Bank of England and the note-issue controversies are of much more restricted use. Indeed, as Mr. Thomas had nothing to say about the Bank of England in the eighteenth century which we did not already know from the works of other modern writers, he might well have confined himself to the "joint-stock banks." For the nineteenth century he has given us digests of the well-known (but voluminous) official papers and the most important pamphlets. To this the student may go for reference but not for ready-made conclusions. In the mass of arguments of the Banking School and the Currency

School, and the criticisms and justifications of the 1844 Act, few students are likely to find the right and wrong of it all. The great fault of the 1844 Bank Charter Act lay in the attempt to substitute for the historically founded practical distinction between Central Banking and Commercial Banking, an entirely artificial distinction between the business of note-issuing and the business of deposit banking. With this, everything that Mr. Thomas says may be consistent; but he will be a shrewd student who reaches the conclusion at first or even second reading.

Many important documents and statistics are presented in the Appendix. Some of the most important documents are reproduced in the text. The utility of the book as a reference work would be enhanced if future editions included a table of *all* these documents.

Extremely little of any use has been written on the history of British banking, and we must be grateful to Mr. Thomas for using the existing sources to the advantage of students who cannot be expected to read the originals. We are grateful, too, for the picture of English joint-stock banking in the middle of the nineteenth century. But much, very much, remains to be done before a comprehensive history of British banking can be written.

R. S. SAYERS.

Commodity Market Terms. By CUTHBERT MAUGHAM. Pitman. 1934. xxvii + 244 pp. 7s. 6d.

This should prove a very useful work of reference for the student who is confronted with a technical market term of whose precise significance he is not quite sure. The book covers a wide range of commodities, including cereals and other foodstuffs, metals and minerals, textiles and fibres, hides and skins, chemicals, wines, and various other products. The information given is naturally highly condensed, but it is probably adequate for anyone who wishes merely to understand the meaning of a term in its context, and is not making a special study of the particular commodity concerned. The index is good.

F. W. PAISH.

Credit and International Trade. By BARNARD ELLINGER. Macmillan. 1934. xvii + 189 pp. 8s. 6d.

This readable little book is not, as might be thought from its title, another contribution to the theory of international trade, but a very entertaining yet practical description of the way a shipment of cotton is financed from the sowing of the crop on Hezekiah Godbehere's Mississippi farm to its conversion into cloth in Lancashire, and then of the shipment of the cloth and its journey into the hands of the ultimate consumer, Mrs. Wu, of Fuen-Choo, Shan-Si, China. We are then shown how the cotton is paid for, by shipments of tea from China to Manchuria, bristles from China to U.S.A., soya beans from Manchuria to Denmark, and butter from Denmark to England. The financial transactions involved are described in considerable detail and

with many reproductions of the actual documents used. To members of the general public this book may be recommended as giving a good idea of the complicated yet flexible machinery by which this country draws its supplies from the ends of the earth; to the budding merchant or banker, for the light it will throw on the sometimes rather mysterious transactions upon which he may find himself engaged; and to the student of economics, for the help it will give him in bringing his studies more closely into touch with those practical realities of which he is sometimes apt to take too little account. F. W. PAISH.

Production Trends in the United States since 1870. By ARTHUR F. BURNS. National Bureau of Economic Research. H. Wolff, New York. 1934. 363 pp. \$3.50.

This volume is among the latest of a series of several publications by the National Bureau of Economic Research pertaining to accepted types of industrial fluctuations over given periods of time. Professor Wesley C. Mitchell, Director of the Bureau, summarises the problem and findings of this book so aptly and so clearly in the preface, that it is difficult for a reviewer to offer any additional or original comments. For a comprehensive grasp of the meaning of the book, one might merely repeat or refer to what Professor Mitchell has said and give assent to his words of praise. This review, however, is undertaken for the benefit of those to whom the volume is perhaps not yet available and is intended to state the impressions of an outside reader, influenced but little by the opinions of those intimately associated with the work.

After defining the purpose of the study, Dr. Burns describes his careful, extended research into the growth of individual production series that have been important in the industrial development of the United States since 1870. He confines his subject-matter to essentials, omitting many laborious details, yet the statistics presented are ample. Throughout the text there are interspersed forty-three illustrative tables and twenty-one charts, with an additional seventy pages of supporting data and descriptive notes in the appendix.

The primary consideration in this volume is a theoretical one, of the behaviour of long-time movements, in which the author seeks to discover similarities or differences of pattern and, on the basis of these, to formulate conclusions as to the probabilities of production trends in general. For this purpose he makes use of annual data only for one hundred odd industrial series, all of which were available as far back as 1885 and many of which extended to 1870. He lists these individual series at the very outset, showing the earliest date for which each is available, estimating the percentage of the entire field covered by his samples, and pointing out the defects and limitations of the data used. He also arranges these series in seven convenient groups, viz.: agriculture, fisheries, mining, manufactures, construction, transportation and trade. Later he re-classifies the same series into such divisions as producers' and consumers' goods and as so-called "basic goods."

Dr. Burns next distinguishes two types of trend movement, as he recognises them, one "primary" trends the other "secular" trends. He explains: "Lines of 'secular trend' trace out paths more or less undulatory and also have an underlying general sweep. . . . It is convenient to refer to the general sweep of the secular trend of a series as its 'primary' trend." The latter corresponds to the usual statistical understanding of non-cyclical, long-time movements. On the other hand, Dr. Burns' concept of so-called "secular trends" is rather unusual. While he computes both types of trends in this study, his interest centres more largely upon secular trends, from which he determines successive and changing decade rates and also measures "trend-cycles."

The general mathematical formula to which the author has chosen to fit his trends is the logarithmic parabola; i.e. the form $\log y = c + \log ax + \log bx^2$. His precise degree of retardation (or acceleration) is found in $\log b$, the second derivative of y with respect to x . Although admitting that the selection of the type of mathematical curves applied to industry is ordinarily more or less arbitrary, Dr. Burns defends the use of the parabolic form, saying that he sees "no rational basis for the notion that industries grow until they approximate some maximum size and then maintain a stationary position for an indefinite period." He adds, "nor is the notion at all supported by experience: the production records of our industries practically never evidence a plateau at the apex: once an industry ceases to advance, it soon . . . embarks on a career of decadence."

Dr. Burns discovers wide variations in the decade rates of the individual series to which he has applied these measures of growth, but finds tendencies toward continuity and indications that most series retard with the passing of time, that is, show continuously lower and lower percentages of increase from one decade to the next. In general, the more rapidly growing industries show the larger rates of retardation, notably minerals, manufactures and non-essentials; the rates of retardation of agricultural products and of those staples closely related to the growth of population are on the whole comparatively low. The author offers many logical explanations of these differing patterns of development by individual industries, which cover necessarily varying stages of maturity. He formulates merely the one general rule: "An industry tends to grow at a declining rate, its rise being eventually followed by an (actual) decline." Without attempting to prove it, Dr. Burns ventures the opinion that the life history of individual industries is becoming shorter, because of the increasing importance of "luxuries" and "style goods" in our national life.

The state of retardation in separate industries, however, Dr. Burns considers is quite consistent and in harmony with rapid growth in general industry, or in a progressive economy. In the aggregate, new industries with rapid rates of growth are continuously appearing and competing with the older industries. After reviewing several different composite indexes of physical production, Dr. Burns considers that we have no

very adequate measure of the growth of *total* production in the United States, inasmuch as none of the series takes sufficient account of the influence of new industries. However, in the light of these available composite indexes of production and from the evidence with regard to the individual industries, Dr. Burns makes this conclusion: "If there has been any decline in the rate of growth in the total physical production of this country, its extent has probably been slight, and it is even mildly probable that the rate of growth may have been increasing somewhat."

A secondary consideration in this study is the showing of "trend-cycles." These are measures of variations in the decade rates or secular movements from those of the primary trend movements of the given series, which were calculated by five-year intervals. Here again some law of order or degree of resemblance was sought. Before presenting the computations, Dr. Burns points out that, if the trend-cycles of different series "synchronise to a considerable degree, they would indicate the existence of a general trend-cycle in the economic system." Excluding the crops or agricultural products, which have entirely different movements, a fairly definite co-movement in individual series and also the composite indexes of production appears to have pervaded from 1875 to date. Also, an examination of economic series other than production indicates the same general rhythm, which the author explains, as "presumably because of their technical and commercial interdependence." Dr. Burns believes that, although trend-cycles do not give as complete a picture as business cycles measured annually or monthly, they have much significance as a fundamental movement upon which the shorter-time wave is superimposed, and that their changing patterns and different degrees of dispersion should be carefully studied.

The value of the contribution of this study to the theory of production trends in the United States is unquestionable. Dr. Burns not only handles his samples of statistical data with skill, but also makes his deductions cautiously and in a logical, scientific manner. He points the way to further research along these general lines: variations in productive trend patterns, both in their long- and short-time aspects, and their significance to the economic system as a whole.

LUCILE BAGWELL.

I Trasferimenti Anormali di Capitali e le Crisi. By MARCO FANNO. Giulio Einaudi, Turin. 1935. pp. 151.

Professor Marco Fanno's book on the interrelations between "abnormal" capital movements and the depression must be welcomed as the first exhaustive monograph on a problem of considerable theoretical interest and as of perhaps even greater importance from the point of view of practical policy.

The author has treated the material of the enquiry from three main aspects.

First, a *résumé* of the theory of the transfer mechanism (with special reference to reparations and war debt payments) is given; secondly,

combined with a digression on banking, the effects of the flight of capital are submitted to searching and lucid analysis, and thirdly, the interrelations between movements of short term funds and "blocked accounts" in particular and the financial perturbations of 1931-33 in general are analysed. The book closes with a history of the actual monetary events during that period.

The final chapter, which treats the last of the three aspects mentioned, is outstanding. Of the innumerable accounts of the financial crisis, Professor Fanno's is perhaps the most readable. His successful synthesis of the numerous tendencies causing unexpected capital movements, deflation and general disconfidence is as much a proof of rarely excelled insight into international finance as it is dramatic in style.

The chapter dealing with the theory of the transfer mechanism is a repetition of Mr. Keynes' early arguments in his *Economic Journal* controversy, but lacks at times the precision of Mr. Keynes' thoughts on the subject. It is a pity that Professor Fanno has so completely ignored the treatment proposed by Ohlin, for the theory of the transfer mechanism belongs to that constantly widening field of economic theory, where the legitimate desire to become intelligible to a greater number of readers may at times only be satisfied at the cost of stating half-truths. Instead of avoiding the use of modern tools of analysis, Professor Fanno would have done the science a greater service either by subjecting the arguments on both sides of the transfer controversy to a critical examination or by aligning himself with Haberler's precise statement of the intermediate position.

Marco Fanno's analysis of the flight of capital is the first attempt after Machlup's article in the *Weltwirtschaftliches Archiv* (1932, Vol. 36) to apply the theory of the transfer mechanism to the sudden large-scale withdrawal of foreign short-term funds and the exodus of national capital. To the extent that Professor Fanno's treatment lays particular stress on the difference between the effects (in the *receiving* country) of the flight of capital and those of other capital exports, it is a definite improvement over Machlup's pioneering effort in this field. The reason why funds exported under conditions of a flight of capital have to be transferred almost entirely in the form of gold or foreign exchange is justly ascribed to the probable failure of buying activity to increase previously to, simultaneously with, or after the monetary transfer.

A minor criticism may be made of Professor Fanno's definition of abnormal capital movements. The author calls those capital movements abnormal which do not arise from a difference in net rates of interest; i.e. movements of capital not directed towards a higher net rate of interest. The latter is defined as the ruling rate of interest exclusive of the risk premium (pp. 9, 11, 23). This definition of abnormal capital movements does not seem entirely satisfactory since, apart from the fact that during times of extreme uncertainty national net rates of interest are not accurately ascertainable, this definition does not cover unambiguously the type of capital movement which forms the main

subject of Fanno's enquiry: the flight of capital. The flight of capital is the result of a divergence between the actual difference between the market-risk premium paid in the two countries concerned and the individual estimates of the difference in risks involved. It is not sufficient to consider only the market-risk premium which Professor Fanno apparently has in mind. If now the individual-risk premium demanded is higher than the market-risk premium, and if the net rate of interest is conceived as the current rate of interest exclusive of the risk-premium, then the net rate of interest in the country where the funds seek refuge is higher to the individual than that in his own country. The flight of capital could thus not be called an "abnormal" capital movement as defined by the author, if the individual-risk premium which is the relevant one in this connection is considered.

For a better understanding of certain arguments in Professor Fanno's book on capital movements, a word might be added concerning his terminology. In the course of his enquiry concerning the sources of supply of the money funds to be transferred, he distinguishes (p. 50) between *new savings* (risparmi di nuova formazione) and *savings formerly accumulated and already invested* (risparmi precedentemente accumulati e già investiti). Corresponding to the *neue Ersparnisse* of certain German authors, Marco Fanno's *risparmi nuovi* are savings which are not invested. It may be convenient to sever all linguistic connections with the word "savings." Since Marco Fanno discusses the transfer of amortisation quotas under a different heading, it seems advisable to substitute for his *new savings* the term *cash balances after maintenance of existing capital*, varying in volume according to the liquidity preferences of the individuals; i.e. in other words, that proportion of the total money receipts of the community which is not spent on consumption nor planned to be spent thus during a given subsequent period of time and which has not flown into new investment.

The value of the present work of Marco Fanno might be said to be in its realistic treatment of the difficulties connected with the sudden transfer of capital, and in its penetrating analysis of the interrelations between these difficulties and the actual confusion in international finance during the last few years rather than in its purely theoretical considerations.

H. K. HEUSER.

About Money. By ERICH ROLL. Faber & Faber. 1934. 255 pp. 7s. 6d.
Money. By M. A. ABRAMS. The Bodley Head. 1934. xi + 127 pp.
 2s. 6d.

Both these books provide for the layman and the first-year student introductions to modern monetary theory. It is certainly important at the present time that the general public should become acquainted, in a broad way, with the recent advances which have been made. Current problems of monetary policy are discussed, and the reader is given some insight into the implications of various policies.

Mr. Roll deals with the nature of money in discussing which he includes the relationships between money and the short-term and long-term capital markets; the problems of the value of money and money and crises; and the problem of monetary policy. In his discussion of these questions Mr. Roll gives a useful introduction to the works of the most important writers on money.

Unfortunately, Mr. Roll is not always consistent. For instance, he says on p. 199, "This seems to be a good objective to aim at: let prices vary with productivity." On p. 206, however, he says, "But there is a far more fundamental criticism of the policy of a neutral money supply which arises particularly when we consider the increase of productivity and the consequent fall in prices. It is true that such a fall in prices would result in no serious disturbance if the prices of all factors (i.e. costs) fell at the same time, and to the same extent." This second statement is fallacious. A fall in the prices of goods and services owing to an increase in productivity does not necessitate such a fall in factor prices. Unit costs fall with the increase in productivity. Indeed, Mr. Roll is aware of this in his discussion of the policy of stabilising the average of the prices of the original means of production. Here, p. 209, he says, "Total money costs would remain constant; increased physical productivity would result in diminished money costs per unit of output, lower prices, and increased real income."

Mr. Roll describes the trade cycle on the lines of the Austrian School. He explains how a producers' credit inflation increases the average period of production and points out that a reaction is inevitable. He adds the criticism that "... the chain of consequences which has been expounded is quite consistent with non-monetary causation." The main characteristic of the upward swing of the trade cycle as described by Mr. Roll is investment in excess of voluntary saving. It does not seem possible to the reviewer to conceive such an excess of investment over voluntary saving in a barter economy.

In discussing the way out of the depression Mr. Roll considers the relative merits of the policies of lowering costs and raising prices. He then proceeds to devote considerable attention to the question of public works. He states that it is doubtful whether the objections of the opponents of public works "... are really founded on anything more than a general objection to public enterprise." Such a statement is quite unjustified.

Mr. Abrams' book, *Money*, is a popular but somewhat naïve exposition of Professor Hayek's views on the theory of money. It is written in a very interesting style and his gramophone parable (p. 35, footnote) is delightful.

The account of Professor Hayek's triangles in the chapter on "Money and Production" lacks precision and clarity. It is assumed that the number of separate stages of production is increased when the average period of production is lengthened. No explanation of this assumption is given, and this must be very confusing to the layman.

Further, Mr. Abrams explains a lengthening of the period of production as a result of inflation without reference to frictional difficulties. He then explains the downward swing of the trade cycle as a consequence of the shortening of the period of production which follows. The complicated problem of the different effects of a lengthening and a shortening of the average period of production in these circumstances is completely ignored. This is a serious defect in a book which purports to explain the relationship between money and production.

The book contains many sweeping statements. With little or no explanation Mr. Abrams makes such statements as "By their very nature they (the banks) must lend more than is saved . . ." and "... a socialist economy can dispense with banks entirely." The first of these statements is wrong. The second demands careful explanation and is very misleading in his argument regarding money and socialism.

J. C. GILBERT.

Volkswirtschaftspolitik, Leitfäden der Volkswirtschaftslehre. By ADOLF WEBER. Munich and Leipzig: Verlag Duncker und Humblot. 1935. 206 pp. RM. 4.20.

This new book by Adolf Weber can be regarded as a supplement to Vols. III and IV of his larger work "Volkswirtschaftslehre." The subjects treated are the problems of agriculture, industry and internal as well as external trade of Germany, and the way in which the state tried to solve these problems. The book is mainly descriptive. Its utility lies in the systematic account of the new important laws and regulations in these spheres up to 1935. It is scarcely necessary to add, that Weber's book also contains an exposition of the underlying ideas of National-socialism on which these measures are based.

Geld-Kredit, Banken, Leitfäden der Volkswirtschaftslehre. By GEORG HALM. Munich and Leipzig: Verlag Duncker und Humblot. 1935. 167 pp. RM. 3.50.

This book, which is published in the same series as the book by Weber, is intended to be an introduction to the theory of money and banking, not only for students, but also for men in practical life who are interested in theoretical questions. It shows a good grasp of all problems connected with money and monetary theory, and informs the student not only of facts about money and banking, but also about most of the theoretical questions which are under discussion at the present time. Undoubtedly an interested student will be stimulated to give individual thought to the problems dealt with in this book, which is the best compliment that can be paid to such a text-book. This advantage seems to counterbalance any doubt that one may have as to whether the arrangement of the material is always entirely satisfactory from the pedagogical point of view.

F. LUTZ.

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